



**US Army Corps
of Engineers**

**PROJECT REPORT
FOR LANDFILL MAINTENANCE AND
PAH CONTAMINATED SOIL REMOVAL
FORMER ALABAMA ARMY AMMUNITION PLANT
CHILDERSBURG, ALABAMA**

Submitted to:

United States Army Corps of Engineers, Mobile District

109 Saint Joseph St

Mobile, AL 36602-3630

Contract: W91278-08-D-0031

Task Order: 0002

August 2009

Prepared by:

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**Project Report
for Landfill Maintenance and PAH Contaminated Soil Removal at
the Former Alabama Army Ammunition Plant
Childersburg, Alabama**

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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

SpecPro Environmental Services LLC (SES) has completed the Project Report – Landfill Maintenance and PAH Contaminated Soil Removal at the former Alabama Army Ammunition Plant, Childersburg, Alabama. SES certifies that an independent technical review has been conducted on this document to verify that the report has been prepared in accordance with established procedures, consistent with the law, and United States Corps of Engineers policies and guidance.

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List of Acronyms

ADEM	Alabama Department of Environmental Management
ALAAP	Alabama Army Ammunition Plant
bgs	below ground surface
DS	data summary
ELAB	Empirical Laboratories, LLC
EPA	United States Environmental Protection Agency
J	estimated value
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NA	not analyzed
NL	not listed
°C	degrees Centigrade
PAH	Polycyclic Aromatic Hydrocarbons
PRG	Preliminary Remediation Goal
R	value rejected during data validation
RCRA	Resource Conservation and Recovery Act
RGO	Remedial Goal Option
SAIC	Science Applications International Corporation
SES	SpecPro Environmental Services LLC
SVOCs	semivolatile organic compounds
TC	Technical Coordinator
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
U	parameters not detected at Method Reporting Limit
USACE	United States Army Corps of Engineers
VOCs	volatile organic compounds
VR	validation report

EXECUTIVE SUMMARY

SpecPro Environmental Services LLC (SES), under contract to the United States Army Corps of Engineers (USACE), Mobile District, has implemented corrective measures at the former Alabama Army Ammunition Plant (ALAAP) near Childersburg, Alabama.

LANDFILLS – SES personnel performed maintenance activities on three landfills. The surface of the three landfills (Asbestos Repository Landfill, Non-Hazardous Waste Landfill, and Area 22 Demolition Debris Landfill) was cleared and mowed. Trees were removed from the surface of the landfills and any visible damage (such as erosion ruts) was repaired using on-site soils. In addition, a path large enough for pick-up truck travel was cleared and mowed around the outside of the fenced perimeter of each landfill. Native grasses were planted in the repaired areas and covered with hay or straw mulch. SES provided new keyed-alike, high-quality, weather-resistant padlocks for each of the two gates at each landfill. SES delivered the keys for the padlocks to the USACE Technical Coordinator for distribution. The maintenance and repair activities at the landfills have returned them to a sustainable condition, and periodic maintenance should continue.

BUILDING 2403 SITE (Area 2 – former smokeless powder facility) – Approximately 168 cubic yards (cyd) of soil potentially contaminated with polycyclic aromatic hydrocarbons (PAHs) was excavated north of the concrete foundation of the former Building 2403. The soil was loaded into lined dump trucks and transported to the Three Corners Landfill in Piedmont, Alabama. During the excavation activities, blackened and apparently burned material was encountered next to the concrete slab in the area planned for excavation to 3 feet below ground surface. A sample of the material was collected and submitted for laboratory analyses. Confirmation soil samples were collected within and around the sidewalls of the final excavation and submitted for laboratory analyses. The analytical results of the burned waste samples and confirmation soil samples indicate that no parameters were detected at a concentration exceeding the corresponding cleanup goals for this area. SES recommends that the site continue as before with enforced Land Use Controls as specified in the decision documents for the site.

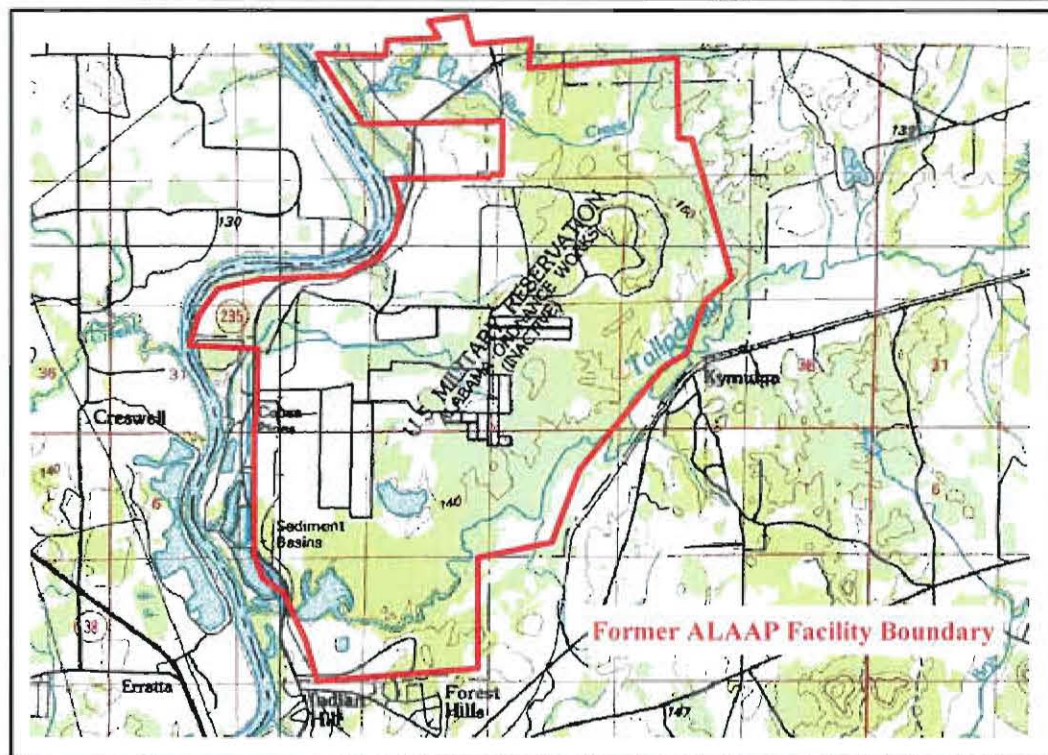
1. INTRODUCTION

SpecPro Environmental Services LLC (SES), under Contract No. W91278-08-D-0031, Task Order No. 0002 to the United States Army Corps of Engineers (USACE), Mobile District, has implemented corrective measures at the former Alabama Army Ammunition Plant (ALAAP) near Childersburg, Alabama. This report addresses maintenance activities performed on three existing landfills (Asbestos Repository Landfill, Non-Hazardous Waste Landfill, and Area 22 Demolition Debris Landfill) and the excavation and off-site disposal of polycyclic aromatic hydrocarbon (PAH)-impacted soil in Study Area 2 (the former smokeless powder facility, Building 2403).

2. SITE HISTORY

The former ALAAP facility is in Talladega County, Alabama, about four miles north of Childersburg. The plant was established in 1941 to produce nitrocellulose, single-base smokeless powder, and nitroaromatic explosives (for example, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, and tetryl). ALAAP was a government-owned, contractor-operated facility during World War II. Facility operations ceased in 1945, and the plant was on standby status until the 1970s. The facility was officially closed in 1988.

ALAAP originally encompassed 13,233 acres, but the majority of the land has been deeded to the city of Childersburg, Alabama. Approximately 2,187 acres remain the responsibility of the United States government [Science Applications International Corporation (SAIC), 1996]. The former ALAAP property is bounded to the north and northeast by Little Blue Creek and an undeveloped wooded area, to the south and southeast by Talladega Creek and a mixture of agricultural and residential areas, and to the west and northwest by the Coosa River. In 2009, the site contains paved roads, gravel and dirt logging roads, railroad tracks, and bridges in varying conditions. Most of the buildings have been removed to their concrete foundations, and much of the land is overgrown with dense vegetation. The location of the former ALAAP facility is shown on Figure 2-1.



Former ALAAP Facility Boundary

0 1 2
Miles



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Landfill Maintenance and
PAH Contaminated Soil
Removal at the Former
Alabama Army Ammunition Plant
Childersburg, Alabama

Figure 2-1 Former Alabama Army Ammunition Plant Location Map

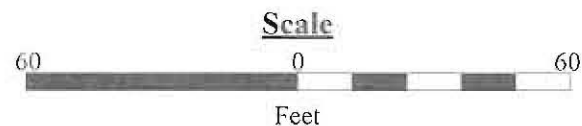
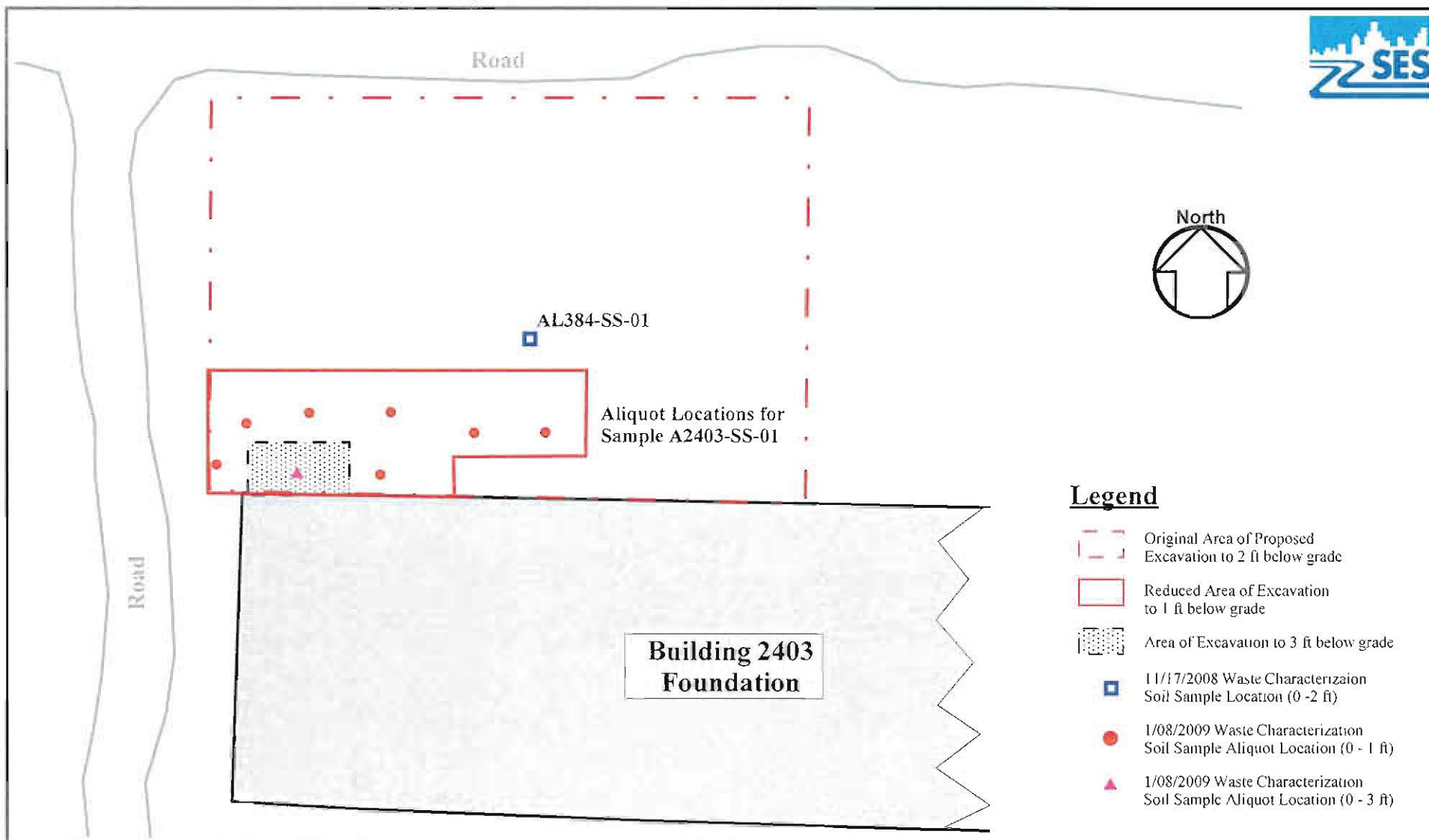
3. LANDFILL MAINTENANCE

SES personnel mobilized to the site on 17 November 2008 to perform maintenance activities on the three landfills. The surface of the three landfills (Asbestos Repository Landfill, Non-Hazardous Waste Landfill, and Area 22 Demolition Debris Landfill) was cleared and mowed. Trees were removed from the surface of the landfills and any visible damage (such as erosion ruts) was repaired using on-site soils. In addition, a path large enough for pick-up truck travel was cleared and mowed around the outside of the fenced perimeter of each landfill. Native grasses were planted in the repaired areas and covered with hay or straw mulch. SES provided new keyed-alike, high-quality, weather-resistant padlocks for each of the two gates at each landfill. SES delivered the keys for the padlocks to the USACE Technical Coordinator (TC) for distribution.

4. BUILDING 2403 SITE (AREA 2 – FORMER SMOKELESS POWDER FACILITY)

The remediation goal at the former Building 2403 site was to excavate and remove the PAH-contaminated soil to reduce the potential for impacts to human health and the environment. The initial area proposed for removal measured approximately 120 feet by 160 feet (19,200 square feet) to a depth of 2 feet below ground surface (bgs).

While developing the project work plans, analytical results were reviewed again from the sampling previously conducted on the site to delineate the extent of PAH contamination in the soils (SAIC, 2007). This review indicated that a smaller area of soil could be excavated to accomplish the remedial goals at the site. The revised excavation area encompassed approximately 3,695 square feet with the majority of the area excavated to a depth of 1 foot bgs and a small area next to the concrete slab excavated to 3 feet bgs. Figure 4-1 presents both the initial area proposed for excavation and the revised excavation area.



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Landfill Maintenance and
PAH Contaminated Soil
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Childersburg, Alabama

Figure 4-1 Former Building 2403 Excavation Boundary

4.1 WASTE CHARACTERIZATION SAMPLING

SES collected waste characterization soil samples within the excavation to complete waste profiling requirements for disposal at the landfill selected for the project. Appendix A contains a copy of the field logbook for the project.

During the field effort on 17 November 2008, SES personnel cleared the trees and other vegetation from the proposed excavation area and collected a composite soil sample for waste characterization analyses from the center of the area. The soil sample was collected using a pre-cleaned stainless steel hand auger to 2 feet bgs. The soil from the borehole was removed from the auger, placed in a stainless steel bowl, and thoroughly mixed to create a composite sample. The composite soil sample was placed into sample containers and shipped overnight via FedEx to Empirical Laboratories, LLC (ELAB) of Nashville, Tennessee, for analyses. The waste characterization sample (AL384-SS-01) was prepared for analyses using the Resource Conservation and Recovery Act (RCRA) Toxicity Characteristic Leaching Procedure (TCLP). The resulting leachate was analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides/herbicides, metals, cyanide, ignitability, corrosivity, and reactive sulfide.

The location of the initial waste characterization sample was outside the revised excavation area. SES personnel returned to the site on 8 January 2009 to collect a new waste characterization sample and to mark the boundaries of the revised excavation. The Alabama Department of Environmental Management (ADEM) required one waste characterization sample be collected for each 20 cubic yards of excavated soil; however, ADEM agreed that up to 10 samples could be composited into a single sample for TCLP analysis (representative of a total of 200 cubic yards of excavated soil). Based on the estimated volume of 175 cubic yards of soil to be removed from the revised excavation area, 10 sample aliquots were collected from across the area to be excavated and composited into one waste characterization sample for analytical testing. Samples were collected by advancing a stainless steel hand auger to the desired depth (either 1 foot or 3 feet bgs depending on the proposed excavation depth at that location). Aliquots of soil were removed from the auger bucket and placed in a stainless steel bowl. The individual aliquots were thoroughly mixed and placed directly into the appropriate sample containers. The sample was shipped via FedEx for overnight delivery to ELAB for analyses. The waste characterization sample (AL2403-SS-01) was prepared for analyses using the RCRA TCLP. The resulting leachate was analyzed for VOCs, SVOCs, pesticides/herbicides, metals, cyanide, ignitability, corrosivity, and reactive sulfide. In

accordance with a request by ADEM, the soil sample was also analyzed for total petroleum hydrocarbons (TPH) by Environmental Protection Agency (EPA) SW846 Method 9071. The TPH analysis was performed by Test America of Nashville, Tennessee. Figure 4-1 shows the location of the waste characterization samples in relation to the proposed excavation areas.

Table 4-1 presents the results of the analyses of the waste characterization samples, and the corresponding laboratory analytical forms are contained in Appendix B. In the second waste characterization sample (AL2403-SS-01), only one VOC [chlorobenzene at an estimated concentration of 0.0043 J milligrams per liter (mg/L)], and two metals (barium at an estimated concentration of 0.388 J mg/L and cyanide at an estimated concentration of 0.17 J mg/L) were detected. None of the parameters was detected at a concentration exceeding the RCRA TCLP limits indicating a hazardous waste.

A waste profile was developed and submitted to ADEM and to the selected disposal site (Three Corners Regional Landfill, Piedmont, Alabama) using sample AL2403-SS-01 collected on 8 January 2009. Based on the waste characterization profile, ADEM approved the disposal of the excavated soil at the selected disposal site. Copies of the waste characterization profile and the ADEM approval letter are contained in Appendix D.

4.2 SOIL EXCAVATION AND WASTE DISPOSAL

SES personnel mobilized to the site on Monday, 2 March 2009, to remove and dispose of the PAH-impacted soils at the former Building 2403 site. Excavation began on the east side of the area using a bulldozer to scrape material from east to west and stockpile material on the west side of the site near the road. A tracked excavator was used in the area to be excavated to 3 feet bgs. Photographs of the excavation process are contained in Appendix C.

During the excavation of the 3 feet area, burned waste material was found. The waste material consisted of glass fragments, nails, screws, angle iron, partially burned wood, and gravel. Initially, an attempt was made to remove the material and segregate it from the other soils. However, the excavator reached 6 to 8 ft bgs and was still in the material. At the direction of Mr. Ernest McCollum (USACE TC), excavation ceased in this area and all of the burned material was returned to the hole.

4-1 Analytical Results for Waste Characterization Samples

Sample No.	Regulatory Limit (mg/L)	AL384-SS-01 TCLP (mg/L)	AL2403-SS-01 TCLP (mg/L)
Volatile Organic Compounds (VOCs)			
Benzene	0.50	0.0051 J	0.010 U
2-Butanone	200	0.10 U	0.10 U
Carbon Tetrachloride	0.50	0.010 U	0.010 U
Chlorobenzene	100	0.010 U	0.0043 J
Chloroform	6	0.010 U	0.010 U
1,4-Dichlorobenzene	7.5	0.010 U	0.010 U
1,2-Dichloroethane	0.50	0.010 U	0.010 U
1,1-Dichloroethene	0.70	0.010 U	0.010 U
Tetrachloroethene	0.70	0.010 U	0.010 U
Trichloroethene	0.50	0.0081 J	0.010 U
Vinyl Chloride	0.20	0.020 U	0.020 U
Semivolatile Organic Compounds (SVOCs)			
2,4-dinitrotoluene	0.13	0.050 U	0.050 U
Hexachlorobenzene	0.13	0.050 U	0.050 U
Hexachlorobutadiene	0.50	0.050 U	0.050 U
Hexachloroethane	3.0	0.050 U	0.050 U
3-Methylphenol	200	0.050 U	0.050 U
4-Methylphenol	200	0.050 U	0.050 U
2-Methylphenol	200	0.050 U	0.050 U
Nitrobenzene	2.0	0.050 U	0.050 U
Pentachlorophenol	100	0.20 U	0.20 U
Pyridine	5.0	0.20 U	0.050 U
2,4,5-trichlorophenol	400	0.050 U	0.050 U
2,4,6-trichlorophenol	2.0	0.050 U	0.050 U
Pesticides			
Alpha Chlordane	0.03	0.00050 U	0.00050 U
Endrin	0.02	0.00010 U	0.0001 U
Gamma-BHC (hexachlorocyclohexane, gamma)	0.4	0.00010 U	0.00010 U
Heptachlor	0.008	0.00010 U	0.00010 U
Heptachlor epoxide	0.008	0.00010 U	0.00010 U
Methoxychlor	10	0.00010 U	0.00010 U
Toxaphene	0.5	0.010 U	0.010 U
Herbicides			
2,4 - D	10	0.0050 U	0.0050 U
2,4,5 TP (Silvex)	1	0.00050 U	0.00050 U

Table 4-1 Analytical Results for Waste Characterization Samples (continued)

Sample No.	Regulatory Limit (mg/L)	AL384-SS-01 TCLP (mg/L)	AL2403-SS-01 TCLP (mg/L)
Metals / Inorganic Compounds			
Arsenic	5	0.030 U	0.030 U
Barium	100	0.315 J	0.388 J
Cadmium	1	0.010 U	0.010 U
Chromium (total)	5.0	0.020 U	0.020 U
Lead	5.0	0.015 U	0.015 U
Mercury	0.2	0.00080 U	0.00080 U
Selenium	1	0.030 U	0.030 U
Silver	5	0.010 U	0.010 U
TCLP Physical Parameters			
Initial pH (units)	Not Applicable	7.3	7.4
Final pH (units)	Not Applicable	5	4.9
Cyanide (mg/kg)	250	<0.12	0.17 J
Ignitability (°F)	<140	<158	>158
Laboratory pH (units)	<2 / >12.5	7.3 @ 25°C	7.3 @ 25°C
Reactive Sulfide (mg/kg)	500	25	<19
Total Petroleum Hydrocarbons (TPH)		¹ ADEM (mg/kg)	(mg/kg)
Oil & Grease (non-polar)	100	NA	67.9

¹Alabama Department of Environmental Protection (ADEM) TPH Action Level

Shaded values indicate that the parameter was not detected or not analyzed for.

J = estimated value

°C = degree Celsius

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

NA = not analyzed

TCLP = Toxicity Characteristic Leaching Procedure

U = parameter not detected at Method Reporting Limit

4.2.1 Disposal of Excavated Soil

Based upon the area delineated by previous investigations at the site (SAIC 1996, 2004, 2007), an estimated 175 cubic yards of PAH-contaminated soil required excavation and off-site disposal. The soil excavated from the area shown on Figure 4-1 was stockpiled on the west side of the site, north of the concrete foundation for the former Building 2403 and within the area to be excavated to 1 foot bgs. The soil was loaded from this stockpile into lined dump trucks supplied by Massey Hauling Co., Inc. of Oneonta, Alabama. Each truck had an estimated capacity of 12 cubic yards of material. A total of 14 truckloads (approximately 168 cubic yards or 339.68 tons) of soil were removed from the site and transported to the Three Corners Landfill in Piedmont, Alabama. A separate non-hazardous waste manifest, signed by the USACE TC, accompanied each truckload of material to the landfill. Appendix D contains a copy of the waste manifests and the waste disposal invoice from Waste Management, which operates the Three Corners Landfill.

4.2.2 Disposal of Other Wastes

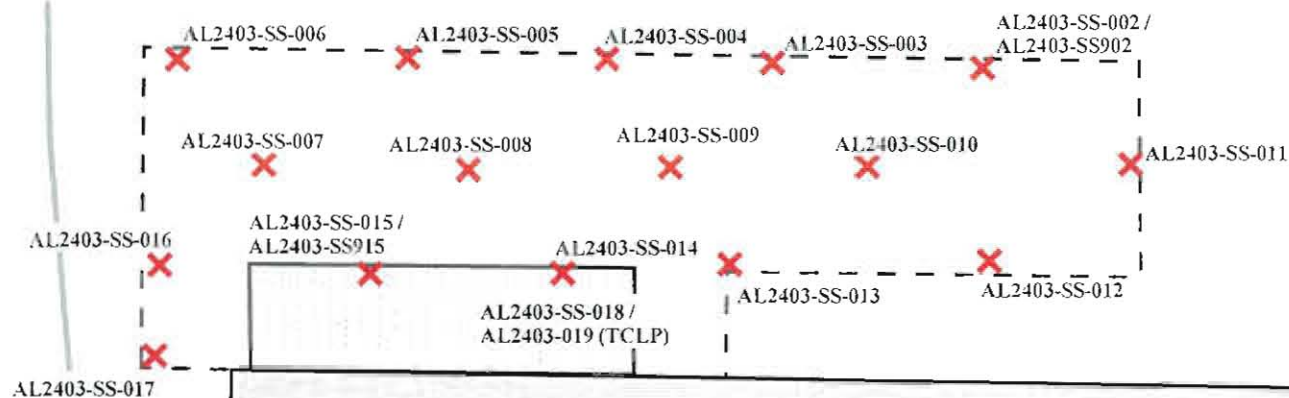
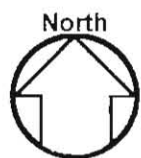
Other wastes (for example, paper and plastic wrappers, plastic sheeting, and disposable gloves) generated during the field activities were placed in a plastic garbage bag. The single garbage bag was transported off-site and disposed in a trash dumpster designated for household waste.

4.3 SOIL SAMPLING

4.3.1 Confirmation Soil Samples

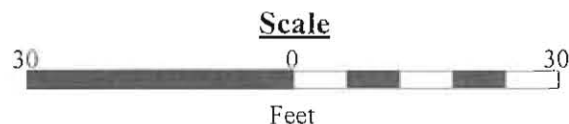
Upon completion of excavation activities, 16 confirmation samples (with two duplicate samples) were collected at the locations shown on Figure 4-2. Samples were collected at least 1 foot below the existing grade using a combination of stainless steel spoons and hand auger. At each location a portion of soil was placed into a stainless mixing bowl and thoroughly mixed before being placed into a 4-ounce glass jar with a Teflon-lined lid. The samples were shipped via FedEx to ELAB for analysis. The samples were analyzed for PAHs using low level Method 8270. The analytical data was subjected to third party data validation by DataChek of Myrtle Beach, South Carolina. A data summary (DS)/validation report (VR) was prepared and is contained in Appendix B. The DS/VR includes the validated data results and the rationale for qualifying the laboratory results as needed. Table 4-2 presents the PAHs detected in the confirmation samples.

Sixteen PAHs were detected in one or more of the confirmation samples. However, none of the detected values for the PAHs exceeded the values of the Remedial Goal Option (RGO) and/or Preliminary Remediation Goal (PRG) values in Table 9 of the *Supplemental Remedial Investigation Sampling Report* (SAIC, July 2007).



Legend

- X Confirmatory Soil Sample Location
- Area Excavated to 1 ft below grade
- Area Excavated to 3 ft below grade
- Concrete Building Foundation
- ~ Road



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Figure 4-2 Former Building 2403 Confirmatory Sample Locations

4-2 Polycyclic Aromatic Hydrocarbons (PAHs) Detected in Confirmation Samples

Sample No.	¹ Industrial Soil RGO (mg/kg)	AL2403-SS-002 (mg/kg)	AL2403-SS-902 (mg/kg)	AL2403-SS-003 (mg/kg)	AL2403-SS-004 (mg/kg)	AL2403-SS-005 (mg/kg)	AL2403-SS-006 (mg/kg)	AL2403-SS-007 (mg/kg)
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	29,219	0.13	0.14	0.0035 J	0.0027 J	0.0079	0.0048 U	0.14
Acenaphthylene	NL	0.047 U	0.024 U	0.0030 J	0.0048 U	0.0038 J	0.0031 J	0.050 U
Anthracene	100,000	0.24	0.31	0.0064	0.0069	0.017	0.0021 J	0.30
Benzo(a)anthracene	55	0.78	0.64	0.025 U	0.026 U	0.083	0.012 U	1.40
Benzo(b)fluoranthene	55	0.80	0.89	0.026 U	0.027 U	0.093	0.015 U	1.50
Benzo(k)fluoranthene	548	0.27	0.22	0.0047 U	0.0079 U	0.033	0.0034 U	0.48
Benzo(g,h,i)perylene	29,126	0.48	0.50	0.022 U	0.017 U	0.059	0.012 U	0.82
Benzo(a)pyrene	5.5	0.77	0.67	0.030 U	0.028 U	0.088	0.017 U	1.30
Chrysene	2,110	0.52	0.39	0.017 U	0.017 U	0.054	0.010 U	0.99
Dibenz(a,h)anthracene	5.50	0.22	0.20 U	0.013 U	0.013 U	0.025 U	0.011 U	0.36 U
Fluoranthene	22,000	1.80	1.60	0.052	0.045	0.17	0.016	3.0
Fluorene	26,281	0.10	0.13	0.0039 J	0.0036 J	0.0082	0.0023 J	0.13
Ideno(1,2,3-cd)pyrene	55	0.48	0.48	0.022 U	0.020 U	0.058	0.014 U	0.84
Naphthalene	55.92	0.046 J	0.12	0.0078 U	0.0079 U	0.0068 J	0.0079 U	0.11
Phenanthrene	29,126	1.00	1.10	0.028	0.022	0.082	0.0064	1.50
Pyrene	29,126	1.20	1.20	0.038	0.031	0.13	0.011	2.10

¹Remedial Goal Option (RGO) values taken from *ALAAP CERCLA Proposed Plan – Final* (SAIC, Sept 2008).

Shaded values indicate parameter was not detected at the Method Reporting Limit or value was rejected during data validation

J = estimated value

mg/kg = milligrams per kilogram

NL = not listed

U = parameter not detected at the Method Reporting Limit

R = value rejected during data validation

Table 4-2 Polycyclic Aromatic Hydrocarbons (PAHs) Detected in Confirmation Samples (continued)

Sample No.	¹ Industrial Soil RGO/PRG (mg/kg)	AL2403-SS-008 (mg/kg)	AL2403-SS-009 (mg/kg)	AL2403-SS-010 (mg/kg)	AL2403-SS-011 (mg/kg)	AL2403-SS-012 (mg/kg)	AL2403-SS-012DL (mg/kg)
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	29,219	0.0047 U	0.0037 J	0.51	0.0051 U	0.082	0.079 R
Acenaphthylene	NL	0.0030 J	0.0046 U	0.048 U	0.0051 U	0.0047 U	0.024 U
Anthracene	100,000	0.0020 J	0.0085	0.85	0.0042 U	0.17	0.150 R
Benzo(a)anthracene	55	0.0093 U	0.023 U	2.20	0.0074 U	0.550 U	0.500 R
Benzo(b)fluoranthene	55	0.010 U	0.024 U	2.70	0.0081 U	0.530 U	0.660 R
Benzo(k)fluoranthene	548	0.002 U	0.0067 U	0.90	0.0051 U	0.180 U	0.170 R
Benzo(g,h,i)perylene	29,126	0.0092 U	0.018 U	1.20	0.0073 U	0.280 U	0.310 R
Benzo(a)pyrene	5.5	0.014 U	0.027 U	2.00	0.0098 U	0.480 U	0.480 R
Chrysene	2,110	0.0075 U	0.016 U	1.50	0.0061 U	0.410 U	0.320 R
Dibenz(a,h)anthracene	5.50	0.0059 U	0.012 U	0.50	0.0063 U	0.100 U	0.130 R
Fluoranthene	22,000	0.011	0.048	5.5	0.0058 J	1.2 R	1.10
Fluorene	26,281	0.0026 J	0.005	0.45	0.0026 J	0.068	0.67 R
Ideno(1,2,3-cd)pyrene	55	0.012 U	0.019 U	1.20	0.010 U	0.27	0.300 R
Naphthalene	55.92	0.0079 U	0.0076 U	0.20	0.0084 U	0.022	0.021 R
Phenanthrene	29,126	0.0054 J	0.029	4.0	0.0034 J	0.69	0.640 R
Pyrene	29,126	0.0073	0.034	3.80	0.0034 J	0.840 R	0.79

¹Remedial Goal Option (RGO) values taken from *ALAAP CERCLA Proposed Plan* (SAIC, Sept 2008).

Shaded values indicate parameter was not detected at the Method Reporting Limit or value was rejected during data validation.

J = estimated value

mg/kg = milligrams per kilogram

NL = not listed

U = parameter not detected at the Method Reporting Limit

R = value rejected during data validation

Table 4-2 Polycyclic Aromatic Hydrocarbons (PAHs) Detected in Confirmation Samples (continued)

Sample No.	¹ Industrial Soil RGO/PRG (mg/kg)	AL2403-SS-013 (mg/kg)	AL2403-SS-014 (mg/kg)	AL2403-SS-015 (mg/kg)	AL2403-SS-915 (mg/kg)	AL2403-SS-016 (mg/kg)	AL2403-SS-017 (mg/kg)
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	29,219	0.039	0.0026 J	0.069	0.057	0.0047 U	0.018
Acenaphthylene	NL	0.0048 U	0.0047 U	0.023 U	0.023 U	0.0047 U	0.0047 U
Anthracene	100,000	0.078	0.0055	0.14	0.12	0.0039 U	0.035
Benzo(a)anthracene	55	0.34	0.022 U	0.40	0.29	0.022 U	0.082
Benzo(b)fluoranthene	55	0.36	0.023 U	0.41	0.32	0.024 U	0.076
Benzo(k)fluoranthene	548	0.11	0.0076 U	0.16	0.10	0.0076 U	0.026
Benzo(g,h,i)perylene	29,126	0.18	0.016 U	0.26	0.22	0.015 U	0.043
Benzo(a)pyrene	5.5	0.31	0.024 U	0.40	0.31	0.025 U	0.074
Chrysene	2,110	0.25	0.016 U	0.26	0.20	0.017 U	0.049
Dibenz(a,h)anthracene	5.50	0.073	0.012 U	0.11 U	0.10 U	0.012 U	0.020 U
Fluoranthene	22,000	0.67	0.044	0.98	0.76	0.05	0.18
Fluorene	26,281	0.03	0.0037 J	0.064	0.055	0.0047 U	0.018
Ideno(1,2,3-cd)pyrene	55	0.18	0.018 U	0.25	0.21 U	0.018 U	0.045 U
Naphthalene	55.92	0.024	0.0079 U	0.037 J	0.032 J	0.0079 U	0.0086
Phenanthrene	29,126	0.37	0.027	0.62	0.50	0.022	0.13
Pyrene	29,126	0.47	0.028	0.67	0.52	0.033	0.12

¹Remedial Goal Option (RGO) values taken from *ALAAP CERCLA Proposed Plan* (SAIC, Sept 2008)

Shaded values indicate parameter was not detected at the Method Reporting Limit or value was rejected during data validation

J = estimated value

NL = not listed

mg/kg = milligrams per kilogram

U = parameter not detected at Method Reporting Limit

R = value rejected during data validation

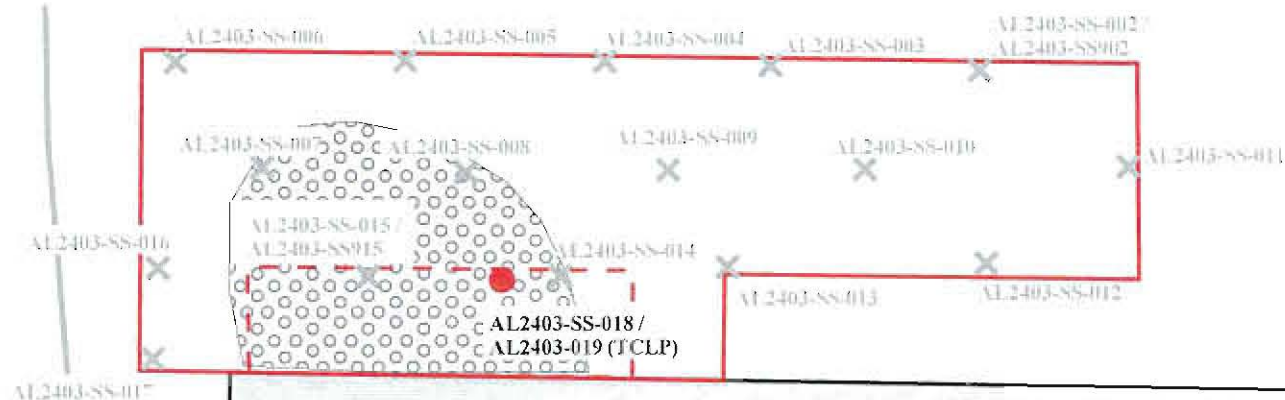
4.3.2 Waste Material Sample

Surface observations of the burned waste material (burned material at the base of the 1-foot excavation area corresponding to a very soft area in the surface soils) indicate that the waste material is contained in a roughly semi-circular area approximately 40 feet along the northwest edge of the Building 2403 foundation and extending approximately 30 feet north of the foundation. The depth to the base of the material and, therefore, the total volume is unknown. Figure 4-3 shows the approximate extent of the waste material.

Two samples of the waste material were collected from the same location and submitted for laboratory analyses. Both samples were collected at the location shown on Figure 4-3, approximately 2 feet below the excavated surface on the sidewall of the excavation from within the waste material.

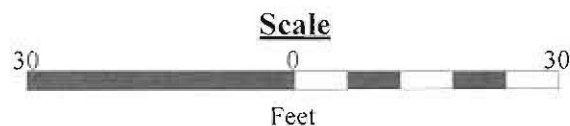
AL2403-SS-018 was analyzed for total VOCs, SVOCs, pesticides, and metals. Sample AL2403-SS019 was subjected to the RCRA TCLP and the resulting leachate was analyzed for VOCs, SVOCs, pesticides, herbicides, and metals. The parameters detected in the samples are presented in Table 4-3.

The analytical results for sample AL2403-SS-018 were compared to the RGO and/or PRG values found in Table 9 of the *Supplemental Remedial Investigation Sampling Report* (SAIC, July 2007). None of the parameters was detected at a concentration exceeding the comparison values. RGOs were not developed for those parameters that were not considered contaminants of concern for Study Area 2 (SAIC, November 2001). Therefore, the results were also compared to the most current EPA Region 9 PRGs for Industrial Soils (USEPA, September 2008). Only one parameter [benzo(a)pyrene] was detected at a concentration exceeding the most recent PRG. However, the detected concentration (an estimated concentration of 0.840 mg/kg) for benzo(a)pyrene was well below the corresponding RGO for the site of 5.5 mg/kg.



Legend

- Burned Waste Sample Location
- × Confirmatory Soil Sample Location
- Area Excavated to 1 ft below grade
- Area Excavated to 3 ft below grade
- Approximate Area of Burned Waste Material
- Road



Prepared for USACE
Mobile District



Landfill Maintenance and
PAH Contaminated Soil
Removal at the Former
Alabama Army Ammunition Plant
Childersburg, Alabama

Figure 4-3 Former Building 2403 Burned Waste Sample Location

Table 4-3 Analytical Parameters Detected in Burned Waste Samples

Sample No.	¹ Industrial Soil RGO/PRG (mg/kg)	² USEPA Region 9 PRG, Sept 2008 (mg/kg)	AL2403-SS-018 (mg/kg)	AL2403-SS-019 TCLP (mg/L)	RCRA TCLP Limit (mg/L)
Parameter					
Volatile Organic Compounds (VOCs)					
Acetone	NL	610,000	0.015 J	NA	0.70
Methylene Chloride	NL	54	0.018	NA	0.50
Semivolatile Organic Compounds (SVOCs)					
Acenaphthene	29,219	33,000	0.110 J	NA	NL
Anthracene	100,000	170,000	0.240 J	NA	NL
Benzo(a)anthracene	55	2.10	0.800 J	NA	NL
Benzo(b)fluoranthene	55	2.10	1.20 J	NA	NL
Benzo(k)fluoranthene	548	21	0.510 J	NA	NL
Benzo(g,h,i)perylene	29,126	NL	0.540 J	NA	NL
Benzo(a)pyrene	5.5	0.210	0.840 J	NA	NL
bis(2-ethylhexyl)phthalate	NL	120	0.330 J	NA	NL
Carbazole	NL	NL	0.200 J	NA	NL
Chrysene	2,110	210	0.860 J	NA	NL
Dibenz(a,h)anthracene	5.50	0.21	0.170 J	NA	NL
Dibenzofuran	NL	NL	0.077 J	NA	NL
Fluoranthene	22,000	22,000	2.0 J	NA	NL
Fluorene	26,281	22,000	0.096 J	NA	NL
Ideno(1,2,3-cd)pyrene	55	2.10	0.640 J	NA	NL
Naphthalene	55.92	20	0.078 J	NA	NL
Phenanthrene	29,126	NL	1.20 J	NA	NL
Pyrene	29,126	17,000	1.60 J	NA	NL
Pesticides					
Alpha-BHC (hexachlorocyclohexane, alpha)	NL	0.27	0.00024 J	NA	NL
Alpha Chlordane	NL	6.5	0.0014 J	0.00050 U	0.03
Beta-BHC (hexachlorocyclohexane, beta)	NL	0.96	0.00038 J	NA	NL
4,4' - DDD	NL	7.2	0.0081 J	NA	NL
4,4' - DDE	NL	5.1	0.036	NA	NL
4,4' - DDT	NL	7	0.0071	NA	NL
Dieldrin	NL	0.11	0.00080 J	NA	NL
Endrin	NL	180	0.002 J	0.0001 U	0.02
Gamma-BHC (hexachlorocyclohexane, gamma)	NL	2.1	0.00031 J	0.00010 U	0.4
Gamma - Chlordane	NL	NL	0.0019	NA	NL
Heptachlor epoxide	NL	0.19	0.00041 J	0.00010 U	0.008

Table 4-3 Analytical Parameters Detected in Burned Waste Samples (continued)

Sample No.	¹ Industrial Soil RGO/PRG (mg/kg)	² USEPA Region 9 PRG, Sept 2008 (mg/kg)	AL2403-SS-018 (mg/kg)	AL2403-SS-019 TCLP (mg/L)	RCRA TCLP Limit (mg/L)
Parameter					
Metals / Inorganic Compounds					
Aluminum	NL	990,000	15,000	NA	NL
Antimony	NL	410	4.5	NA	NL
Arsenic	33	1.6	14.6	0.030 U	5
Barium	NL	190,000	307	0.651	100
Beryllium	NL	2,000	1.20 J	NA	NL
Cadmium	NL	810	3.8	0.0482	1
Calcium	NL	NL	55,800	NA	NL
Chromium (total)	NL	1,400	21.8 J	0.020 U	5.0
Cobalt	NL	300	5.5	NA	NL
Copper	NL	41,000	216	NA	NL
Iron	NL	720,000	23,300	NA	NL
Lead	1,200	800	318	0.105	5.0
Magnesium	NL	NL	8,490	NA	NL
Manganese	NL	23,000	754	NA	NL
Mercury	NL	310	0.021 J	0.00080 U	0.2
Nickel	NL	20,000	15.2	NA	NL
Potassium	NL	NL	1,530	NA	NL
Selenium	NL	5,100	1.6	0.030 U	1
Sodium	NL	NL	262 J	NA	NL
Vanadium	NL	7,200	24.4	NA	NL
Zinc	NL	310,000	1,030	NA	NL
TCLP Physical Parameters					
Initial pH (units)	Not Applicable	Not Applicable	NA	8.1	Not Applicable
Final pH (units)	Not Applicable	Not Applicable	NA	6.1	Not Applicable
Cyanide (mg/kg)	Not Applicable	Not Applicable	NA	0.67	250
Ignitability (°F)	Not Applicable	Not Applicable	NA	>158	<140
Laboratory pH (units)	Not Applicable	Not Applicable	NA	8.3 @ 25°C	<2 / >12.5
Reactive Sulfide (mg/kg)	Not Applicable	Not Applicable	NA	<19	500

¹Remedial Goal Option (RGO) values taken from *ALAAP CERCLA Proposed Plan* (SAIC, Sept 2008).

²Preliminary Remediation Goal (PRG) values taken from *USEPA Region 9 PRG Table, Industrial Soils* (USEPA, Sept 2008).

BOLD values indicate value exceeding USEPA September 2008 PRG concentration.

Shaded values indicate parameter was either not detected at the Method Reporting Limit or was not included in the analytical suite.

°C = degrees Centigrade

J = estimated value

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

NA = not analyzed

NL = not listed

RCRA = Resource Conservation and Recovery Act

TCLP = Toxicity Characteristic Leaching Procedure

U = parameter not detected at Method Reporting Limit

4.4 SITE RESTORATION

SES personnel returned to the site on 7 July 2009 to complete backfilling of the excavation. Backfill material was obtained from the on-site borrow area approximately 1,100 feet north of the excavation. Native soil was excavated from the borrow area using a tracked excavator and placed in a truck provided by Massey Hauling for transport to the excavation. A total of 16 truckloads of material (approximately 192 cubic yards) was placed into the excavation. Backfill was dumped at the west end of the excavation and pushed out into the excavation using a bulldozer. The fill was placed in 6- to 8-inch lifts and compacted with the bulldozer tracks. The finish grade of the backfill surface was crowned to promote drainage. A grass seed mix was spread over the disturbed area, and the area was fully covered with straw. Photographs of the site restoration activities are contained in Appendix C.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 LANDFILLS

The maintenance and repair activities at the landfills have returned them to a sustainable condition, and periodic maintenance should continue.

5.2 BUILDING 2403 SITE (AREA 2 – FORMER SMOKELESS POWDER FACILITY)

The analytical results of the soil and burned waste samples indicate that no parameters were detected at a concentration exceeding the corresponding RGO for Area 2. The site should continue as before with enforced Land Use Controls as specified in the decision documents for the site (SAIC, 2008).

6. REFERENCES

EPA (United States Environmental Protection Agency), September 2008. *Region 9 Preliminary Remedial Goal (PRG) Table, Industrial Soil*.

Science Applications International Corporation (SAIC), March 1996. *Alabama Army Ammunition Plant Area B, Supplemental Remedial Investigation/Feasibility Study*.

SAIC, November 2001. *Technical Memorandum-Draft Final, Recommended Remedial Goal Options Alabama Army Ammunition Plant – Area B, Childersburg, Alabama*.

SAIC, 6 July 2004. *Technical Memorandum-Final – Work Plan Addendum for Supplemental Remedial Investigation (RI) Activities – Alabama Army Ammunition Plant (ALAAP) – Area B, Additional Soil Sampling Required in Study Area 2 – Smokeless Powder Facility and the South Georgia Road Dump Site.*

SAIC, July 2007. *Results of Supplemental Investigations for Area B Groundwater, Study Area 2, and Potable Well Resampling, Alabama Army Ammunition Plant – Area B, Childersburg, Alabama – Draft.*

SAIC, September 2008. *CERCLA Proposed Plan, Alabama Army Ammunition Plant – Area B Soils, Surface Water, and Sediment, Final.*

SAIC, October 2008. *CERCLA Record of Decision, Alabama Army Ammunition Plant – Area B Soils, Surface Water, and Sediment, Draft Final.*

SpecPro Environmental Services LLC (SES), January 2009. *Project Plans for Landfill Maintenance and PAH Contaminated Soil Removal, Former Alabama Army Ammunition Plant, Childersburg, Alabama.*

Appendix A

Copy of Field Logbook

ALAAP

LANDFILL MAINTENANCE
PAH CONTAMINATED SOIL
REMOVAL

CHILDERS BURG, AL

SES PROJECT No.

EO 159.0002

USACE CONTRACT No.

W91278-08-D-0031

TASK ORDER 0002

LOGBOOK 1 of 1

NOV 17, 2008 To

NATIONAL

408

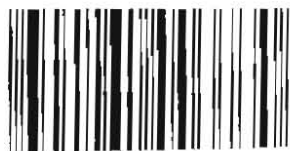
MINING TRANSIT BOOK

ROSS McCOLLUM (USACE)
(251) 690-3113 (251) 709-9460

ROY BEAN (WASTE/CORP & AL)
WCA
OFFICE: (256) 378-6878
CELL: (205) 368-0864

Property of SES LLC
1006 FLOYD CULLER CT
Address OAK RIDGE, TN 37830
ATTN: ROY HOEKSTRA
Telephone (865) 481-7837

PROJECT
LABORATORY



Sample Receiving
Empirical Laboratories, LLC
621 Mainstream Drive
Suite 270
T Nashville, TN 37228
51
at Tel: 615-345-1115
Toll Free: 1-877-345-1113
Cell: 615-828-9479

INDEX

[JAMES PETERS (256) 504 2767]

JOSH FOWLER (WASTE MANAGEMENT)
(713) 203-9920

SANDRA (WASTE MANAGEMENT/LANDFILL)
(205) 652-8134

BRIAN (MASSEY TRUCKING)
(205) 625-3855

LYNN ROPER (ADGM)
(334) 271-7728

ALAAP
E0159.0002 LANDFILL; PAH

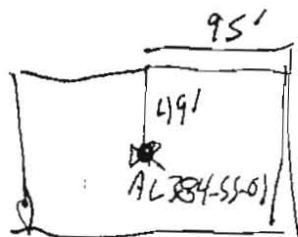
11/17/08
MGN ①

12:00 MET W/ ROSS MCCOLLUM
(USACE)
; ROY BEAN (WCA) @ THE
SITE.

BLDG 384
ASBESTOS REPOSITORY
NON-HAZ WASTE LANDFILL
AREA 22 LANDFILL

TOURED SITES

14:30 COLLECTED SOIL SAMPLE
AL384-SS-01
FOR WASTE CHARACTERIZATION
@ BLDG 384 SITE



FED EX AIR BILL #
5824-5368-7425

SAMPLE FOR
TCLP VOC
SBC
PEST/HERB
METALS/RCI

COC # 43175

11/17/08 J/C

(2)

1/8/09 Sunny Breezy 50's (3)
ALAAP PAH Soil

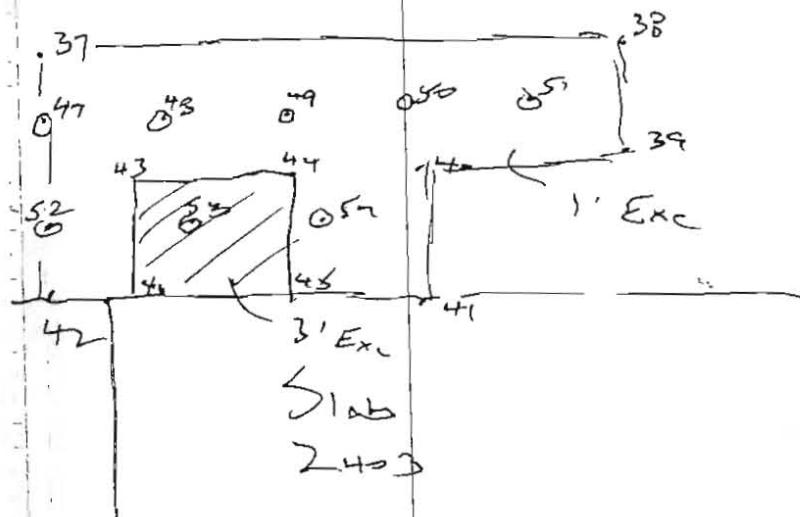
1230 - JLA/RS Onsite

1245 - Marking Excavation
limits : Waste Characterization

Sample locations.

1325 - GPS Points

WPT-037 - WPT-054



Sample Alignment

(4) 1/8/09 ALAAP PAH S-1

1400- Collected 10 aliquots
@ 8 locations 7-0-1
1-0-3'

1430 - Collected (composh)
AL 2403 - SS-01

TCLP / TPH. 6-402 glass
JARS

SVOC
Pest/H...
Metals/RCE

1500- Offsite.

1630. @ FEDEX Rainbow
City AL

EO159.0002

ALAAP

MON 3/2/09

PAH SOILS

SUNNY 38°F

12:45 ONSITE W/ BRIAN McNAMEY

JOHNATHAN COOK CHRISTIAN
BEARFIELD

PAT MARTIN

ROSS MCCOLLUM (USACE) ONSITE

EXCAVATES



EXCAVATES 3' AREA & SCRAPED
1 FT AREA INTO STOCKPILE
NEAR ROAD.

MASSEY TRUCKING CALLS I WILL
HAVE 7 TRUCKS @ GATE @ 7AM
TOMORROW

14:30 LEAVING SITE

3/2/09 [Signature]

3/3/09 THE
(6)

ALAAP
PAH SOILS

TCLP SAMPLE AL2403-SS-61

CONFIRMATION SAMPLES

AL2403-SS-02 THRU SS-17
002 017

DUPLICATE SAMPLE WILL
BE DESIGNATED W/9 IN
THE HUNDRED PLACE (ie, SS-903)

0630 ON SITE
6 TRUCKS FROM
MASSBY TRUCKING ON SITE

0646 7TH TRUCK ON SITE

7:10 ROSS MCCOLLUM ON
SITE TO SIGN MANIFESTS

07:30 ALL 7 TRUCKS LOADED
AND LEFT SITE W/SIGNED
MANIFESTS

Offsite 3/3/09

ALAAP
PAH SOILS

3/3/09
THE (7)

07:45 BRIAN CALLED SAID THEY
HAD DUG INTO BLACK MATERIAL
FOUND BURNED MATERIAL
@ BOTTOM OF 3' AREA OF EXCAVATION
APPEARS TO BE BURNED WOOD

[1 TCLP
1 FULL SUITE]

W/METAL
PIECES

APPEARS TO EXTEND
AT LEAST 10' DEEP

DISCUSSED SITUATION
W/ROSS HE DIRECTED US TO
STOP DIGGING IN THIS AREA.
WE WILL SAMPLE THE MATERIAL
AND DECIDE WHAT TO DO WITH
IT.

DOUG HAWN WILL BE SENDING ME
JARS TO COLLECT A SOIL SAMPLE

OF THE MATERIAL. WATER IS
COLLECTING IN THE EXCAVATION.
(IN THE 3' AREA.)

11:30 2 TRUCKS BACK ON SITE

11:45 4 MORE TRUCKS BACK

3/3/09

8

3/3/09
TUE

ALARP
PAH SOILS

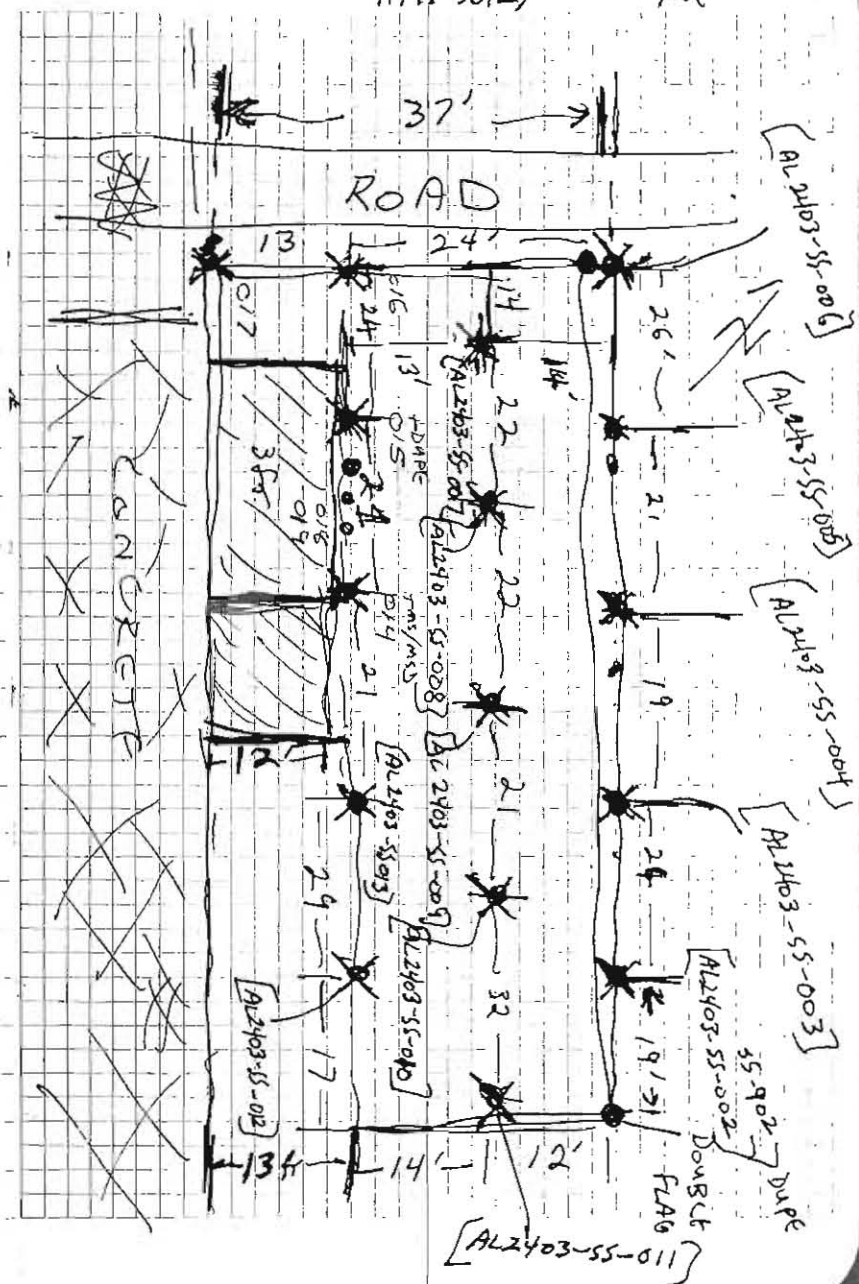
- 11:45 2 TRUCKS LEAVE FOR
LANDFILL w/ SIGNED MANIFESTS
- 11:50 7TH TRUCK BACK ON SITE
- 11:52 3RD TRUCK LEAVING w/ SIGNED
MANIFEST
- 12:00 4TH & 5 TRUCKS LEAVING
w/ SIGNED MANIFESTS
- 12:15 6TH TRUCK LEAVING
4/ SIGNED MANIFESTS
- 12:45 7TH TRUCK LEAVING
w/ SIGNED MANIFEST. ALL
SOIL REMOVED FROM
PLANNED EXCAVATION AREA.
- LAY OUT SAMPLE GRID. PREPARE
TO COLLECT CONFIRMATORY
SOIL SAMPLES

3/3/09

ALARP
PAH SOILS

3/3/09
TUE

9



(10) 3/3/09

ALAAP
PATH SOILS

14:45 COLLECT SAMPLE
1 AL2403-SS-002
3 AL2403-SS-902 (DUPLICATE)

14:50 COLLECT SAMPLE
AL2403-SS-003

14:55 COLLECT SAMPLE
AL2403-SS-004

15:20 COLLECT SAMPLE
AL2403-SS-005

15:30 COLLECT SAMPLE
AL2403-SS-006
(USE HAND AUGER TO GET 1 FT
BELOW GRADE)

15:45 COLLECT SAMPLE
AL2403-SS-007

15:55 COLLECT SAMPLE
AL2403-SS-008

Jeff Cuts 3/3/09

ALAAP
PATH SOILS

3/3/09 (11)
TUE

16:00 COLLECT SAMPLE
AL2403-SS-009

16:05 COLLECT SAMPLE
AL2403-SS-010

16:20 COLLECT SAMPLE
AL2403-SS-011
(USE HAND AUGER TO
GET 1' BELOW GRADE)

16:35 COLLECT SAMPLE
AL2403-SS-012
(ABUNDANT TREE ROOTS)

16:40 COLLECT SAMPLE
AL2403-SS-013

SAMPLE COLLECT 1 FT DOWN ON
SIDEWALL OF 3 FT EXCAVATION
AREA.

SHUTTING DOWN FOR DAY

17:15 ALL PERSONNEL LEAVE
SITE

3/3/09 Jeff Cuts

(12)

3/4/09

WED

ALAAP

PAH SOILS

50°F SUNNY

11:00 ON SITE

CONTINUE COLLECTING
CONFIRMATORY SAMPLES
ALSO TO COLLECT FULL SUITE
TCLP SAMPLE FROM WASTE
MATERIAL

11:20 COLLECT SAMPLE
AL2403-SS-014 + MS/MSD

11:35 COLLECT SAMPLE
AL2403-SS-015
AL2403-SS-915 (DUPE)

11:40 COLLECT SAMPLE
AL2403-SS-016

12:00 COLLECT SAMPLE
AL2403-SS-017
(USED HAND AUGER TO GET 1' BELOW GROUND)

12:20 COLLECT SAMPLE OF WASTE
AL2403-SS-018 FULL SUITE
AL2403-SS-019 TCLP

Offsite 3/4/09

ALAAP

PAH SOILS

3/4/09

WED

(13)

TRIP BLANK SAMPLE # 6814

FODGX AIRBILL #

8425-1912-9002

ELAB

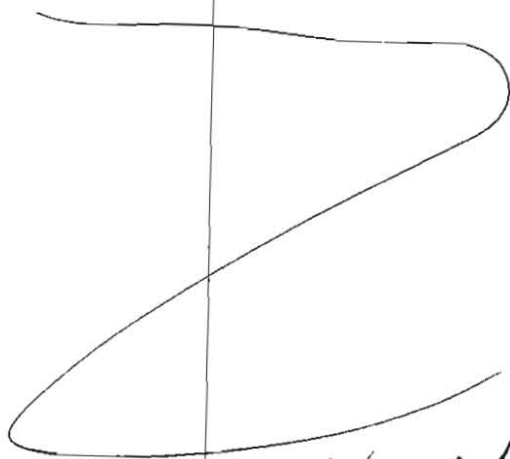
0215

COC # 5156 ; 5157

SHIPPING IN ONE COOLER

13:30 SAMPLE PACKED ; READY
TO LEAVE SITE.

13:55 LEAVING SITE
END OF SAMPLING EVENT



3/4/09

Offsite

Appendix B

Laboratory Analytical Forms

SHIP TO: 227 French Landing Drive, Suite 550 ♦ Nashville, TN 37228 ♦ 615-345-1115 ♦ (fax) 615-846-5426

43175

[illegible]

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL384-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.V11224

Matrix: (soil/water) TCLP Lab Sample ID: 0811224-01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 1122401T

Level: (low/med) LOW Date Sampled: 11/17/08 14:30

% Moisture: not dec. Date Analyzed: 11/25/08 21:26

GC Column: RTX-VRX ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
71-43-2-----	Benzene	0.010	0.50	0.0051	J
78-93-3-----	2-Butanone	0.10	200	<0.10	U
56-23-5-----	Carbon tetrachloride	0.010	0.50	<0.010	U
108-90-7-----	Chlorobenzene	0.010	100	<0.010	U
67-66-3-----	Chloroform	0.010	6.0	<0.010	U
106-46-7-----	1,4-Dichlorobenzene	0.010	7.5	<0.010	U
107-06-2-----	1,2-Dichloroethane	0.010	0.50	<0.010	U
75-35-4-----	1,1-Dichloroethene	0.010	0.70	<0.010	U
127-18-4-----	Tetrachloroethene	0.010	0.70	<0.010	U
79-01-6-----	Trichloroethene	0.010	0.50	0.0081	J
75-01-4-----	Vinyl chloride	0.020	0.20	<0.020	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL384-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B11224

Matrix: (soil/water) TCLP Lab Sample ID: 0811224-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 1122401T

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 11/17/08 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 11/21/08

Concentrated Extract Volume: 1000.0(uL) Date Analyzed: 11/26/08 13:25

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
121-14-2-----	2,4-Dinitrotoluene	0.050	0.13	<0.050	U
118-74-1-----	Hexachlorobenzene	0.050	0.13	<0.050	U
87-68-3-----	Hexachlorobutadiene	0.050	0.50	<0.050	U
67-72-1-----	Hexachloroethane	0.050	3.0	<0.050	U
108-39-4-----	3-Methylphenol	0.050	200	<0.050	U
106-44-5-----	4-Methylphenol	0.050	200	<0.050	U
95-48-7-----	2-Methylphenol	0.050	200	<0.050	U
98-95-3-----	Nitrobenzene	0.050	2.0	<0.050	U
87-86-5-----	Pentachlorophenol	0.20	100	<0.20	U
110-86-1-----	Pyridine	0.20	5.0	<0.20	U
95-95-4-----	2,4,5-Trichlorophenol	0.050	400	<0.050	U
88-06-2-----	2,4,6-Trichlorophenol	0.050	2.0	<0.050	U

FORM 1
PESTA ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL384-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: EL Case No.: SAS No.: NA SDG No.: SES.P11224

Matrix: (soil/water) TCLP Lab Sample ID: 0811224-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 038F3801

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 11/17/08 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 11/20/08

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 11/25/08 00:46

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
57-74-9-----	Chlordane	0.00050	0.030	<0.00050	U
72-20-8-----	Endrin	0.00010	0.020	<0.00010	U
58-89-9-----	Gamma-BHC	0.00010	0.40	<0.00010	U
76-44-8-----	Heptachlor	0.00010	0.0080	<0.00010	U
1024-57-3-----	Heptachlor Epoxide	0.00010	0.0080	<0.00010	U
72-43-5-----	Methoxychlor	0.00010	10	<0.00010	U
8001-35-2-----	Toxaphene	0.010	0.50	<0.010	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL384-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: EL Case No.: SAS No.: NA SDG No.: SES.H11224

Matrix: (soil/water) TCLP Lab Sample ID: 0811224-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 005F0101

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 11/17/08

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 11/25/08

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 11/26/08 14:05

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
94-75-7-----	2,4-D	0.0050	1.0	<0.0050	U
93-72-1-----	2,4,5-TP (Silvex)	0.00050	1.0	<0.00050	U



Empirical Laboratories

CLIENT: SES, Inc.

DATE RECEIVED: 11/18/08

DATE REPORTED: 11/25/08

EMPIRICAL LABORATORIES SAMPLE NUMBER						0811224-01
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE						AL384-SS-01 11/17/2008 14:30
ANALYTES	REGULATORY LIMITS	MDL	REPORTING LIMITS	USEPA METHOD	UNITS	CONC
Arsenic-TCLP	5.0	0.030	0.10	1311/6010B	mg/L	<0.030
Barium-TCLP	100	0.050	2.0	1311/6010B	mg/L	0.315 B
Cadmium-TCLP	1.0	0.010	0.050	1311/6010B	mg/L	<0.010
Chromium-TCLP	5.0	0.020	0.10	1311/6010B	mg/L	<0.020
Lead-TCLP	5.0	0.015	0.030	1311/6010B	mg/L	<0.015
Mercury-TCLP	0.20	0.00080	0.0020	1311/7470A	mg/L	<0.00080
Selenium-TCLP	1.0	0.030	0.050	1311/6010B	mg/L	<0.030
Silver-TCLP	5.0	0.010	0.10	1311/6010B	mg/L	<0.010
Initial pH - TCLP	NA	NA	NA	1311	Units	7.3
Final pH - TCLP	NA	NA	NA	1311	Units	5.0
Cyanide	250	0.12	0.25	9012A	mg/kg (as Rec'd)	<0.12
Ignitability	<140	NA	NA	1010	°F	<158
pH- Laboratory (1)	<2>12.5	NA	NA	9045B	Units	7.3 @ 25°C
Reactive Sulfide	500	19	57	Chap.7.3.4.2	mg/kg (as Rec'd)	25

See attached page for definitions of terms and qualifiers.

EMPIRICAL LABORATORIES

D. Rick Davis
Vice President



Empirical Laboratories

ANALYTICAL REPORT NOTES, TERMS AND QUALIFIERS (INORGANIC)

Notes:

The metals and cyanide reporting limits (RLs) have been statistically determined to be no less than three standard deviations as defined in 40 CFR 136, Appendix B, Revision 1.11. All other reporting limits are referenced from the specific analytical method.

Terms:

NA Not Applicable

NR Not Requested

Qualifiers:

- B The reported value is less than the practical quantitation limit (PQL, project defined) but greater than or equal to the MDL.
- E The reported value is estimated due to the presence of matrix interference.
- N Predigested spike recovery not within control limits.
- * RPD or absolute difference for Duplicate analysis not within control limits.
- ** Reference Standard Methods 19th edition.
- (1) pH analyzed outside USEPA specified holding time. pH must be measured immediately after sample collection.
- (2) The sample pH did not meet the preservation guidelines. Therefore the pH was adjusted upon receipt.
- (3) Reference Standard Methods 17th edition for the distillation method.
- (4) The sample was analyzed out of the USEPA holding time.
- (5) The sample was received in the laboratory out of the USEPA holding time.
- (6) The shipping cooler temperature exceeded 6°C upon receipt to Empirical Laboratories.
- (7) Analysis was subcontracted

SHIP TO: 227 French Landing Drive, Suite 550 ♦ Nashville, TN 37228 ♦ 615-345-1115 ♦ (fax) 615-846-5426

43596

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers.

February 03, 2009 9:25:29AM

Client: Empirical Laboratories, LLC (4017)
227 French Landing Drive
Nashville, TN 37228
Attn: Marcia McGinnity

Work Order: NSA0582
Project Name: AL site
Project Nbr: 0901054 / Alabama TCLP
P/O Nbr:
Date Received: 01/12/09

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
AL2403-SS-01	NSA0582-01	01/08/09 14:30

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Additional Laboratory Comments: CASE NARRATIVE - revised 2/03/09

Oil & Grease (non-polar) indicates silica gel treatment was performed on the sample. TPH is the non-polar portion (SGT) of oil and grease determined by method 9071B.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

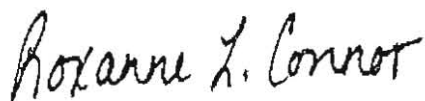
These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.

Estimated uncertainty is available upon request.

This report has been electronically signed.

Report Approved By:



Roxanne Connor

Program Manager - Conventional Accounts

Client: Empirical Laboratories, LLC (4017)
227 French Landing Drive
Nashville, TN 37228
Attn: Marcia McGinnity

Work Order: NSA0582
Project Name: AL site
Project Number: 0901054 / Alabama TCLP
Received: 01/12/09 13:43

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NSA0582-01 (AL2403-SS-01 - Soil) Sampled: 01/08/09 14:30									
General Chemistry Parameters									
Oil & Grease (non-polar)	67.9	NI	mg/kg	42.7	48.5	1	01/19/09 09:02	SW846.9071B	9011870

Client Empirical Laboratories, LLC (4017)
227 French Landing Drive
Nashville, TN 37228
Attn Marcia McGinnity

Work Order: NSA0582
Project Name: AL site
Project Number: 0901054 / Alabama TCLP
Received: 01/12/09 13:43

DATA QUALIFIERS AND DEFINITIONS

L1 Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2 Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
M8 The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS)
N1 See case narrative.
ND Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES



Empirical Laboratories

ORGANIC CASE NARRATIVE

SES – NAS Atlanta

Work Orders: 0901054

Volatile TCLP Samples

Method: The samples were analyzed by USEPA SW-846 Methods 1311/5030B/8260B (zero headspace extraction followed by 5ml purge and trap followed by capillary column GC/MS) for IDW soils upon receipt to the laboratory in satisfactory condition.

Comments: The analyses for these samples were satisfactorily completed within sample holding times and met the corresponding specifications with the following note/exception:

- Note: All TCLP analyses are completed using a 10x dilution.

Semi-Volatile TCLP samples

Method: The samples were extracted/analyzed by USEPA SW-846 Methods 1311/3510C/8270C (TCLP leaching followed by separatory funnel extraction then capillary column GC/MS) for IDW soils upon receipt to the laboratory in satisfactory condition.

Comments: The semi-volatile analyses for these samples were satisfactorily completed within sample holding times and met the corresponding specifications with the following note/exception:

- Note: All TCLP analyses are completed using a 10x dilution.
- In spike samples S1BLK0115BW1LCS and AL2403-SS01MS, recoveries of pyridine were below the limit of 10% at 4% and 6%. All other recoveries were within limits. Evaluating the quantitation limit using the recoveries, the quantitation limit for pyridine remains at or below the regulatory limit.

Pesticide TCLP Samples

Method: The samples were analyzed for the TCLP analyte list by USEPA SW-846 Methods 1311/3510C/8081A (TCLP leaching followed by separatory funnel extraction followed by capillary column GC/ECD) for IDW soils upon receipt to the laboratory in satisfactory condition.

Comments: The analyses for these samples were satisfactorily completed within sample holding times and met the corresponding specifications with the following exceptions:

- Note: All TCLP analyses are completed using a 10x dilution.
- Multi-component analytes toxaphene and chlordane were calibrated using a single-point calibration.
- Several analytes exceeded the 20% difference limit with a positive bias in the initial and continuing calibration verifications. No target analytes were detected in the associated samples.
- In spike sample AL2403-SS-01MS, recovery of chlordane exceeded the limit with a positive bias. No target analytes were detected in the associated samples.



Empirical Laboratories

ANALYTICAL REPORT TERMS AND QUALIFIERS (ORGANIC)

- MDL:** The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDL is determined from analysis of a sample containing the analyte in a given matrix.
- EQL:** The estimated quantitation limit (EQL), also known as reporting limit (RL), is defined as the estimated concentration above which quantitative results can be obtained with a specific degree of confidence. Empirical Laboratories defines the EQL to be at or near the lowest standard of the calibration curve.
- U:** The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the MDL.
- B:** The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.
- D:** When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".
- E:** The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound.
- J:** The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the EQL. One should feel confident that the result is greater than zero and less than the EQL.
- P:** The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is apparent.



Empirical Laboratories

Herbicide TCLP Samples

Method: The samples were analyzed for the TCLP analyte list by USEPA SW-846 Methods 1311/8151A (TCLP leaching followed by separatory funnel extraction then esterification and capillary column GC/ECD) for IDW soils upon receipt to the laboratory in satisfactory condition.

Comments: The analyses for these samples were satisfactorily completed within sample holding times and met the corresponding specifications with the following note/exceptions:

- Note: All TCLP analyses are completed using a 10x dilution.

I certify that, to the best of my knowledge and based upon my inquiry of those individuals immediately responsible for obtaining the information, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in the case narrative, as verified by the following signature.

Marcia K. McGinnity
Senior Project Manager

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.V01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 0105401T

Level: (low/med) LOW Date Sampled: 01/08/09 14:30

% Moisture: not dec. _____ Date Analyzed: 01/14/09 08:56

GC Column: RTX-VRX ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
71-43-2-----	Benzene	0.010	0.50	<0.010	U
78-93-3-----	2-Butanone	0.10	200	<0.10	U
56-23-5-----	Carbon tetrachloride	0.010	0.50	<0.010	U
108-90-7-----	Chlorobenzene	0.010	100	0.0043	J
67-66-3-----	Chloroform	0.010	6.0	<0.010	U
106-46-7-----	1,4-Dichlorobenzene	0.010	7.5	<0.010	U
107-06-2-----	1,2-Dichloroethane	0.010	0.50	<0.010	U
75-35-4-----	1,1-Dichloroethene	0.010	0.70	<0.010	U
127-18-4-----	Tetrachloroethene	0.010	0.70	<0.010	U
79-01-6-----	Trichloroethene	0.010	0.50	<0.010	U
75-01-4-----	Vinyl chloride	0.020	0.20	<0.020	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 0105401T

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 01/08/09 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 01/14/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 01/16/09 15:47

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
121-14-2-----	2,4-Dinitrotoluene	0.050	0.13	<0.050	U
118-74-1-----	Hexachlorobenzene	0.050	0.13	<0.050	U
87-68-3-----	Hexachlorobutadiene	0.050	0.50	<0.050	U
67-72-1-----	Hexachloroethane	0.050	3.0	<0.050	U
108-39-4-----	3-Methylphenol	0.050	200	<0.050	U
106-44-5-----	4-Methylphenol	0.050	200	<0.050	U
95-48-7-----	2-Methylphenol	0.050	200	<0.050	U
98-95-3-----	Nitrobenzene	0.050	2.0	<0.050	U
87-86-5-----	Pentachlorophenol	0.20	100	<0.20	U
110-86-1-----	Pyridine	0.20	5.0	<0.20	U
95-95-4-----	2,4,5-Trichlorophenol	0.050	400	<0.050	U
88-06-2-----	2,4,6-Trichlorophenol	0.050	2.0	<0.050	U

FORM 1
PESTA ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: Case No.: SAS No.: NA SDG No.: SES.P01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 014F1401

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 01/08/09 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 01/14/09

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 01/26/09 18:11

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
57-74-9-----	Chlordane	0.00050	0.030	<0.00050	U
72-20-8-----	Endrin	0.00010	0.020	<0.00010	U
58-89-9-----	Gamma-BHC	0.00010	0.40	<0.00010	U
76-44-8-----	Heptachlor	0.00010	0.0080	<0.00010	U
1024-57-3----	Heptachlor Epoxide	0.00010	0.0080	<0.00010	U
72-43-5-----	Methoxychlor	0.00010	10	<0.00010	U
8001-35-2-----	Toxaphene	0.010	0.50	<0.010	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: Case No.: SAS No.: NA SDG No.: SES.H01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 010F0301

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 01/08/09 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 01/14/09

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 01/15/09 16:23

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
94-75-7-----	2,4-D	0.0050	10	<0.0050	U
93-72-1-----	2,4,5-TP (Silvex)	0.00050	1.0	<0.00050	U



Empirical Laboratories

INORGANIC CASE NARRATIVE

SES, LLC

Work Order # 0901054

January, 2009

Empirical Laboratories ID	Client ID
0901054-01	AL2403-SS-01

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in the case narrative, as verified by the following signature.

Betty DeVille
Inorganic Lab Manager

Methods:

The sample was extracted for TCLP metals using SW846 method 1311A, digested using method 3010A and analyzed for ICAP metals by method 6010B. The mercury for the TCLP extract was analyzed by method 7470A. Cyanide was analyzed by method 9012A and ignitability was analyzed by method 1010. pH was analyzed by method 9045B. Reactive sulfide was analyzed by method Chapter 7.3.4.2 modified per USEPA region IV. Note: The "U" flag indicates that the concentration is reported down to the MDL. The "B" flag indicates that the analyte result is between the laboratory reporting limit and the laboratory MDL. All methods performed according to EPA guidelines and Empirical Laboratories Standard Operating Procedures.

Specific Comments:

All analyses performed by the Inorganic section were completed meeting satisfactorily the corresponding specifications for Quality Control.

SES, Inc.

Parameters Requested

Lab Sample ID	Field ID	Matrix	Date Time Sampled	Parameters requested
0901054-01	AL2403-SS-01	Soil	01/08/2009 14:30	% Solids Arsenic-TCLP Barium-TCLP Cadmium-TCLP Chromium-TCLP Cyanide Ignitability Lead-TCLP Mercury-TCLP pH Selenium-TCLP Silver-TCLP Sulfide, <i>Reactive</i> <i>one 1/24/09</i>



Empirical Laboratories

CLIENT: SES, Inc.

DATE RECEIVED: 01/09/09

DATE REPORTED: 01/30/09

EMPIRICAL LABORATORIES SAMPLE NUMBER						0901054-01
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE						AL2403-SS-01 01/08/2009 14:30
ANALYTES	REGULATORY LIMITS	MDL	REPORTING LIMITS	USEPA METHOD	UNITS	CONC
Arsenic-TCLP	5.0	0.030	0.10	1311/6010B	mg/L	<0.030
Barium-TCLP	100	0.050	2.0	1311/6010B	mg/L	0.388 B
Cadmium-TCLP	1.0	0.010	0.050	1311/6010B	mg/L	<0.010
Chromium-TCLP	5.0	0.020	0.10	1311/6010B	mg/L	<0.020
Lead-TCLP	5.0	0.015	0.030	1311/6010B	mg/L	<0.015
Mercury-TCLP	0.20	0.00080	0.0020	1311/7470A	mg/L	<0.00080
Selenium-TCLP	1.0	0.030	0.050	1311/6010B	mg/L	<0.030
Silver-TCLP	5.0	0.010	0.10	1311/6010B	mg/L	<0.010
Initial pH - TCLP	NA	NA	NA	1311	Units	7.4
Final pH - TCLP	NA	NA	NA	1311	Units	4.9
Cyanide	250	0.12	0.25	9012A	mg/kg (as Rec'd)	0.17 B
Ignitability	<140	NA	NA	1010	°F	>158
pH- Laboratory (1)	<2/>12.5	NA	NA	9045B	Units	7.3 @ 25°C
Reactive Sulfide	500	19	57	Chap.7.3.4.2	mg/kg (as Rec'd)	<19

See attached page for definitions of terms and qualifiers.

EMPIRICAL LABORATORIES

D. Rick Davis
Vice President



Empirical Laboratories

ANALYTICAL REPORT NOTES, TERMS AND QUALIFIERS (INORGANIC)

Notes:

The metals and cyanide reporting limits (RLs) have been statistically determined to be no less than three standard deviations as defined in 40 CFR 136, Appendix B, Revision 1.11. All other reporting limits are referenced from the specific analytical method.

Terms:

NA Not Applicable

NR Not Requested

Qualifiers:

- B The reported value is less than the practical quantitation limit (PQL, project defined) but greater than or equal to the MDL.
- E The reported value is estimated due to the presence of matrix interference.
- N Predigested spike recovery not within control limits.
- * RPD or absolute difference for Duplicate analysis not within control limits.
- ** Reference Standard Methods 19th edition.
- (1) pH analyzed outside USEPA specified holding time. pH must be measured immediately after sample collection.
- (2) The sample pH did not meet the preservation guidelines. Therefore the pH was adjusted upon receipt.
- (3) Reference Standard Methods 17th edition for the distillation method.
- (4) The sample was analyzed out of the USEPA holding time.
- (5) The sample was received in the laboratory out of the USEPA holding time.
- (6) The shipping cooler temperature exceeded 6°C upon receipt to Empirical Laboratories.
- (7) Analysis was subcontracted

Validation Report

**Landfill Maintenance and PAH Contaminated
Soil Removal**

**Former Alabama Army Ammunition Plant,
Childersburg, Alabama.**

Prepared by DataChek



April 10, 2009

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ACRONYMS AND ABBREVIATIONS

%	percent
%D	percent difference
BTEX	benzene, toluene, ethylbenzene, and xylenes
CB	calibration blank
CCAL	continuing calibration
CCV	continuing calibration verification
COC	chain of custody
DRO	diesel range organic
EPH	extractible petroleum hydrocarbons
ER	equipment rinsate
FD	field duplicate
GRO	gasoline range organic
ICAL	initial calibration
ICL	instrument calibration limit
IS	internal standard
J	estimated value
LCS	laboratory control sample
MB	method blank
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
MTBE	methyl tert butyl ether
PAH	polyaromatic hydrocarbon
PARCC	precision, accuracy, representativeness, comparability, completeness
PRO	petroleum range organics
QC	quality control
R	rejected
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
SDG	sample delivery group
TB	trip blank
TPH	total petroleum hydrocarbons
TCE	trichloroethene
U	not detected
UJ	not detected; associated value is an estimate
VPH	volatile petroleum hydrocarbons
VOC	volatile organic compound

1. INTRODUCTION

The data validation of 19 soil samples from the former Alabama Army Ammunition Plant (ALAAP) project was completed in April 2009. All the samples from the soil sample delivery group (SDG), 0903056 have the following label: Stage_3_Validation_Manual (S3VM). Empirical Labs, Nashville, TN, produced all the analytical data as follows:

- Volatile Organics by SW846 8260B;
- Semi-volatile Organics by SW846 8270C;
- Pesticides by SW846 8081A;
- Metals by SW846 6010B; and
- PAHs by SW846 8270C.

Table 1-1 Number of Samples per Analyte Group

Parameter	Media	No. of Samples	SDGs
Volatiles	Soil	1	1
Semi-volatiles	Soil	1	1
Pesticides	Soil	1	1
Metals	Soil	1	1
PAHs	Soil	18	1

2. PROCEDURES

The sample data were validated following the logic identified in *The CLP National Functional Guidelines for Superfund Organic Methods Data Review (June 2008)* and *The Contract Laboratory Program (CLP) Data Validation Functional Guidelines for Evaluating Inorganic Analyses (October, 2004)*.

The data validation qualifiers (Table 5-1) applied by the reviewer were recorded in a column adjacent and to the right of the laboratory results. A data validation reason code was also added to each of the reviewer's qualifiers to provide the user with a means to identify which results were qualified and the reason for the qualifiers (Table 5-2). All data requiring a validation qualifier were labeled as "S3VM" according to *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use (January, 2009)*.

3. SUMMARY OF DATA VALIDATION FINDINGS

This data validation report reflects the data validation findings for samples associated with the ALAAP project. The validated data set consisted 19 soil samples and was validated at EPA Stage 3. Overall the data was of excellent quality, and all measurements required to satisfy the project quality control (QC) objectives (precision, accuracy, representativeness, comparability, and completeness) were met. Each of these measures and specific data qualifications are discussed below.

Precision: Precision is a measure of the agreement between duplicate sample measurements of the same quantity and is reflected in the relative percent difference (RPD) between spikes and the RPD for the field duplicate analysis. Precision for the NAS data was measured at 93.8 percent.

Accuracy: Accuracy is measured by the results from the recovery of known amounts of compounds or elements from laboratory control samples (LCS), matrix spikes (MS), and surrogate recoveries. The overall measure of accuracy for all analyte groups for the ALAAP project was calculated by comparing the number of spike recoveries that exceeded the laboratory limits by the total number of LCS, MS and surrogate spikes. Overall accuracy was measured at 80.6 percent. The low percentage, <90%, was due to the results from the semi-volatile MS/MSD recoveries. The complexity of the soil matrix accounted for 45% of the recoveries from both spikes being outside the QC limits. Without the inclusion of this matrix spike the accuracy would be 93.3%

Representativeness: The measures of representativeness – sample handling, analytical blank analysis, field blanks – were met for all SDGs. Designated analytical protocols were followed. Overall, no major problems were identified resulting from analytical failure.

Comparability: All data were analyzed using appropriate approved methods of analysis. All data results were reported correctly and in standard units

Completeness: Completeness is the amount of valid data compared to the planned amount and is expressed as a percent of the usable data points divided by the total number of analytes for each parameter analyzed. Out of a total of 461 data points, no data points were rejected, resulting in a completeness of 100 percent.

Several sample results for the organic compounds were assigned “J” qualifiers by the laboratory, which is standard practice, because the concentrations were quantified between the method detection limit and the

reporting limit. Due to the uncertainty associated with this region of quantification, the validation reviewer retained the “J” qualifiers assigned by the laboratory.

Data validation summaries, which function as worksheets for the validation task, are included for each parameter in each data package. The following section highlights the key findings of the data validation for each analysis.

4. ANALYSIS-SPECIFIC DATA VALIDATION SUMMARIES

4.1 VOCs BY SW846 8260B

A single soil sample was analyzed for the TCL array of volatile organic compounds. Overall, the data are of good quality and are usable as reported by the laboratory with the exceptions noted below. Data were reviewed for the following:

Holding Times/Sample Condition. Holding times were met for all sample analyses. All samples were received in acceptable condition.

Initial Calibration and Continuing Calibration. The initial calibration (ICAL) and continuing calibration (CCAL) standards associated with the project samples met QC criteria.

Blanks. The presence of xylene in the method blank resulted in that compound result being qualified as “U”.

Surrogate Recoveries. All surrogate recoveries were within the QC limits.

Internal Standards. All internal standards met the QC criteria of +100%/-50% for the area count recoveries.

Matrix Spike/Matrix Spike Duplicate. No MS/ MSD was reported.

Laboratory Control Sample. The LCS/LCSD recoveries were within the QC limits, and no qualifiers were required.

Field Duplicates. No field duplicates were reported.

Quantification. All results were acceptable as qualified.

4.2 SEMIVOLATILE ORGANICS BY SW846 8270C

One soil samples was analyzed for TAL semi-volatile compounds and overall, the data are of good quality and are usable as qualified by the laboratory. Data were reviewed for the following:

Holding Times/Sample Condition. Technical holding time criteria were met for all samples. All samples were received in acceptable condition.

Initial and Continuing Calibration. The results for the ICAL analysis were within the QC limits. The CCAL results were acceptable except for benzo(ghi)perylene and 2,4-dimethylphenol that had percent difference outside the QC limits. These two compounds were qualified as “J” and “UJ”, respectively..

Blanks. No contamination was noted in the associated method blanks.

Surrogate Recoveries. Two base-neutral surrogate recoveries were below the QC limits, and the associated base neutral compounds were qualified as “UJ/J”.

Internal Standards. All internal standards recoveries and retention times are within the QC limits.

Matrix Spike/Matrix Spike Duplicates. Fifteen of the compounds in the MS analysis and 43 from the MSD analysis along with 5 of the RPDs were outside the QC limits. The LCS results were all within the QC limits except for atrazine and di-n-butylphthalate that had low recoveries and were qualified as “UJ”, no additional qualifiers were required.

Laboratory Control Sample. The LCS results were all within the QC limits except for atrazine and di-n-butylphthalate. These two compounds had low recoveries and were qualified as “UJ”.

Field Duplicates. No field duplicate analyses were reported

Quantification. All results were acceptable as qualified.

4.3 PESTICIDES BY SW846 8081A.

Overall, the data are of good quality and are usable as qualified. One soil samples were analyzed for pesticides and the data were reviewed for the following:

Holding Times/Sample Condition. Technical holding time criteria were met for all samples. All samples were received in acceptable condition.

Initial and Continuing Calibration. All initial calibration verification results were within acceptable limits. The results for the continuing calibration verifications (CCV) were also acceptable and no qualifiers were required.

Surrogate Recoveries. The surrogate recoveries were within the QC limit, so no qualifiers were added.

Blanks. No compounds were present in the method blanks.

Matrix Spike/Matrix Spike Duplicates. No MS/ MSD recovery was reported.

Laboratory Control Sample (LCS). No qualifiers were required since the LCS/LCSD recoveries were within the QC limits.

Field Duplicates. No field duplicate was reported.

Quantification. A number of compounds had % differences between the primary and confirmatory column results that exceeded the 25 % limit. These compounds were qualified as “J”. All results were acceptable as qualified.

4.4 METALS BY SW846 6010B

Overall, the data are of good quality and are usable as qualified. A single soil sample was analyzed and the data were reviewed for the following:

Holding Times/Sample Condition. Technical holding time criteria were met for all samples. All samples were received in acceptable condition.

Initial and Continuing Calibration. All initial calibration results were within acceptable limits. The continuing calibration verification (CCV) standards had recoveries for chromium below the QC limit of 90%. The chromium result in the sample was qualified as “J-” due to a possible low bias for the result.

Blanks. No contamination was noted in the associated method blanks, so no qualifiers were required.

Matrix Spike/Matrix Spike Duplicates/Duplicate. The MS/MSD recoveries for mercury were acceptable so no qualifiers were needed.

Laboratory Control Sample (LCS). No qualifiers were required since all LCS recoveries were within the QC limits.

Serial Dilution (SD). No serial dilution was reported.

Field Duplicates. No field duplicate was reported.

Quantification. All results were acceptable as qualified.

4.5 POLYAROMATIC HYDROCARBONS (PAHs) BY SW846 8270C

Eighteen soil samples were analyzed for PAH compounds and overall, the data are of good quality and are usable as qualified by the laboratory. Data were reviewed for the following:

Holding Times/Sample Condition. Technical holding time criteria were met for all samples. All samples were received in acceptable condition.

Initial and Continuing Calibration. The results for the ICAL and CCAL analyses were within the QC limits.

Blanks. Eight compounds were present in the associated method blank and the results for those compounds were qualified as “U” as noted below:

Table 4-1. Compounds qualified as “U” due to method blank contamination.

SDG	Samples effected	Compounds	Qualifier
0903056	AL2403-SS-002, AL2403-SS-902, AL2403-SS-003, AL2403-SS-004, AL2403-SS-005, AL2403-SS-006, AL2403-SS-009, AL2403-SS-915, AL2403-SS-016, AL2403-SS-017	dibenz(a,h)anthracene	U
	AL2403-SS-002, AL2403-SS-902, AL2403-SS-003, AL2403-SS-004, AL2403-SS-006, AL2403-SS-008, AL2403-SS-009, AL2403-SS-911, AL2403-SS-016, AL2403-SS-017	indeno(1,2,3-cd)pyrene	U
	AL2403-SS-003, AL2403-SS-004, AL2403-SS-006, AL2403-SS-008, AL2403-SS-009, AL2403-SS-011, AL2403-SS-016	benzo(a)anthracene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(a)pyrene.	U
	AL2403-SS-003, AL2403-SS-004, AL2403-SS-006, AL2403-SS-007, AL2403-SS-008, AL2403-SS-009, AL2403-SS-011, AL2403-SS-014, AL2403-SS-016	chrysene	U
	AL2403-SS-004, AL2403-SS-006, AL2403-SS-008, AL2403-SS-009, AL2403-SS-016	benzo(k)fluoranthene	U

Surrogate Recoveries. The surrogate recoveries were within the QC limits, so no qualifiers were added.

Internal Standards. All internal standards recoveries and retention times are within the QC limits.

Matrix Spike/Matrix Spike Duplicates. The MS/MSD results were all within the QC limits, so no qualifiers were added.

Laboratory Control Sample. The LCS recoveries were within the QC limits, so no qualifiers were needed.

Field Duplicates. In the AL2403-SS-002/...902 field duplicate analyses naphthalene had an RPD that exceeded the QC limit. The results for that compound in those samples were qualified as “J”.

Quantification. Fluoranthene and pyrene in sample AL2403-SS-012 exceeded the instrument calibration limit and required a dilution to quantify the results. The original results for those two compounds were rejected in favor of the dilution results. All other results were acceptable as qualified.

5. DATA QUALIFIER DEFINITIONS

5.1 DATA QUALIFIER DEFINITIONS

Table 5-1 Data Qualifier Definitions

<u>Qualifier</u>	<u>Definition</u>
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.
U	The analyte was analyzed for, but was not detected above the reported sample quantification limit or the reported analyte value was not detected above 5x or 10x the level reported in laboratory or field blanks.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. J- denotes a low bias for the sample results and J+ for a high bias.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

5.2 DATA VALIDATION REASON CODES

During the review process, a data validation reason code was added to each of the reviewer's qualifiers to allow the user to identify which results were qualified and the reason(s) for the qualifiers. Reason codes are listed and defined in Table 5-2.

Table 5-2 Data Validation Reason Codes

Reason Code	Definition
01	Sample received outside of 4+/-2 degrees Celsius
01A	Improper sample preservation
02	Holding time exceeded
02A	Extraction
02B	Analysis
03	Instrument performance – outside criteria
03A	BFB
03B	DFTPP
03C	DDT and/or Endrin % breakdown exceeds criteria
03D	Retention time windows
03E	Resolution

04	Initial calibration results outside specified criteria
04A	Compound mean RRF QC criteria not met
04B	Individual % RSD criteria not met
04C	Correlation coefficient >0.995
05	Continuing calibration results outside specified criteria
05A	Compound mean RRF QC criteria not met
05B	Compound % D QC criteria not met
06	Result qualified as a result of the 5x/10x blank correction
06A	Method or preparation blank
06B	ICB or CCB
06C	ER
06D	TB
06E	FB
07	Surrogate recoveries outside control limits
07A	Sample
07B	Associated method blank or LCS
08	MS/MSD/Duplicate results outside criteria
08A	MS and/or MSD recovery not within control limits (accuracy)
08B	% RPD outside acceptance criteria (precision)
09	Post digestion spike outside criteria (GFAA)
10	Internal standards outside specified control limits
10A	Recovery
10B	Retention time
11	Laboratory control sample recoveries outside specified limits
11A	Recovery
11B	% RPD (if run in duplicate)
12	Interference check standard
13	Serial dilution
14	Tentatively identified compounds
15	Quantification
16	Multiple results available; alternate analysis preferred
17	Field duplicate RPD criteria is exceeded
18	Percent difference between original and second column exceeds QC criteria
19	Professional judgment was used to qualify the data
20	Pesticide clean-up checks
21	Target compound identification
22	Radiological calibration
23	Radiological quantification
24	Reported result and/or lab qualifier revised to reflect validation findings

% = percent

%D = percent difference

LCS = laboratory control sample

MS = matrix spike

BFB = bromofluorobenzene
CCB = continuing calibration blank
DFTPP = decafluorotriphenylphosphine
ER = equipment rinseate
FB = field blank
GFAA = graphite furnace atomic absorption
ICB = initial calibration blank

MSD = matrix spike duplicate
QC = quality control
RPD = relative percent difference
RRF = relative response factor
RSD = relative standard deviation
TB = trip blank

6. REFERENCES

EPA (U.S. Environmental Protection Agency), June 2008. OSWER 9240.1-48. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA-540-R-08-01)*.

EPA (U.S. Environmental Protection Agency), October, 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA-540-R-04-004)*.

EPA (U.S. Environmental Protection Agency), January 2009. OSWER 9200-1-85. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. (EPA-540/R-08-005)*.

SDG: 0903056 Project: ALAAP --

Method: Semivolatiles - PAHs ^{8270C} Matrix/No. Samples: Soil -19

Validation Samples: AL2403-SS-002 AL2403-SS-004 AL2403-SS-007
AL2403-SS-013 AL2403-SS-002 AL2403-SS-005 AL2403-SS-008
AL2403-SS-014 AL2403-SS-003 AL2403-SS-006 AL2403-SS-009
AL2403-SS-015 AL2403-SS-012 AL2403-SS-011 AL2403-SS-010
AL2403-SS-015 AL2403-SS-0120 AL2403-SS-016 AL2403-SS-017

Data Validation Report Summary

	Status Code	Comments
1. Sample Preservation, Handling, and Transport	<u>A</u>	<u></u>
2. Chain of Custody	<u>A</u>	<u></u>
3. Holding Times	<u>A</u>	<u></u>
4. GC/MS Tune/Inst Perf	<u>A</u>	<u></u>
5. Calibrations	<u>A</u>	<u></u>
6. Blanks	<u>X</u>	<u></u>
7. Blank Spike/LCS	<u>A</u>	<u></u>
8. Matrix Spike	<u>A</u>	<u></u>
9. Surrogates	<u>A</u>	<u></u>
10. Internal Standards	<u>A</u>	<u></u>
11. Compound Identification	<u>X</u>	<u></u>
12. System Performance	<u>A</u>	<u></u>
13. Field QC Samples	<u>X</u>	<u></u>
14. Overall Assessment	<u>X</u>	<u></u>

Status Codes:

A = Acceptable

R = Data Rejected

X = Data acceptable but qualified due to problems

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-002

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-01

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305601D

% Moisture: 15 decanted: (Y/N) N Date Sampled: 03/03/09 14:45

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 15:44

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG	
		MDL	(ug/L or ug/Kg) RL CONC		
83-32-9-----	Acenaphthene	14	47	130	D
208-96-8-----	Acenaphthylene	13	47		UD u
120-12-7-----	Anthracene	9.4	39	240	D
56-55-3-----	Benzo(a)anthracene	16	47	780	BD
205-99-2-----	Benzo(b)fluoranthene	18	59	800	BD
207-08-9-----	Benzo(k)fluoranthene	15	47	270	BD
191-24-2-----	Benzo(g,h,i)perylene	17	59	480	BD
50-32-8-----	Benzo(a)pyrene	12	39	770	BD
218-01-9-----	Chrysene	12	47	520	BD
53-70-3-----	Dibenz(a,h)anthracene	18	59	220	BD u 6a
206-44-0-----	Fluoranthene	20	59	1800	D
86-73-7-----	Fluorene	14	47	100	D
193-39-5-----	Indeno(1,2,3-cd)pyrene	18	59	480	BD u 6a
91-20-3-----	Naphthalene	27	78	46	JD I 17
85-01-8-----	Phenanthrene	20	59	1000	D
129-00-0-----	Pyrene	18	59	1200	D

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-902

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-02

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305602D

% Moisture: 18 decanted: (Y/N) N Date Sampled: 03/03/09 14:45

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 12:18

Injection Volume: 1.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	UG/KG Q	Red Q
83-32-9-----	Acenaphthene	7.3	24	140	D	
208-96-8-----	Acenaphthylene	6.9	24		UD	u
120-12-7-----	Anthracene	4.9	20	310	D	
56-55-3-----	Benzo(a)anthracene	8.5	24	640	BD	
205-99-2-----	Benzo(b)fluoranthene	9.3	30	890	BD	
207-08-9-----	Benzo(k)fluoranthene	7.7	24	220	BD	
191-24-2-----	Benzo(g,h,i)perylene	8.9	30	500	BD	
50-32-8-----	Benzo(a)pyrene	6.1	20	670	BD	
218-01-9-----	Chrysene	6.5	24	390	BD	
53-70-3-----	Dibenz(a,h)anthracene	9.3	30	200	BD	u 6a
206-44-0-----	Fluoranthene	10	30	1600	D	
86-73-7-----	Fluorene	7.3	24	130	D	
193-39-5-----	Indeno(1,2,3-cd)pyrene	9.3	30	480	BD	u 6a
91-20-3-----	Naphthalene	14	40	120	D	J 17
85-01-8-----	Phenanthrene	10	30	1100	D	
129-00-0-----	Pyrene	9.3	30	1200	D	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-003

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-03

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305603

% Moisture: 15 decanted: (Y/N) N Date Sampled: 03/03/09 14:50

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 08:59

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	Q	Rev
83-32-9-----	Acenaphthene	1.4	4.7	3.5	J	J
208-96-8-----	Acenaphthylene	1.3	4.7	3.0	J	J
120-12-7-----	Anthracene	0.94	3.9	6.4		
56-55-3-----	Benzo (a) anthracene	1.6	4.7	25	B	u
205-99-2-----	Benzo (b) fluoranthene	1.8	5.9	26	B	u
207-08-9-----	Benzo (k) fluoranthene	1.5	4.7		U	u
191-24-2-----	Benzo (g, h, i) perylene	1.7	5.9	22	B	u
50-32-8-----	Benzo (a) pyrene	1.2	3.9	30	B	u
218-01-9-----	Chrysene	1.2	4.7	17	B	u
53-70-3-----	Dibenz (a, h) anthracene	1.8	5.9	13	B	u
206-44-0-----	Fluoranthene	2.0	5.9	52		
86-73-7-----	Fluorene	1.4	4.7	3.9	J	J
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	1.8	5.9	22	B	u
91-20-3-----	Naphthalene	2.7	7.8		U	u
85-01-8-----	Phenanthrene	2.0	5.9	28		
129-00-0-----	Pyrene	1.8	5.9	38		

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-004

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-04

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305604

% Moisture: 16 decanted: (Y/N) N Date Sampled: 03/03/09 14:55

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 09:27

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	Q	Rev
83-32-9-----	Acenaphthene	1.4	4.8	2.7	J	J
208-96-8-----	Acenaphthylene	1.3	4.8		U	u
120-12-7-----	Anthracene	0.95	4.0	6.9		
56-55-3-----	Benzo (a) anthracene	1.7	4.8	26	B	u
205-99-2-----	Benzo (b) fluoranthene	1.8	5.9	27	B	
207-08-9-----	Benzo (k) fluoranthene	1.5	4.8	7.9	B	
191-24-2-----	Benzo (g, h, i) perylene	1.7	5.9	17	B	
50-32-8-----	Benzo (a) pyrene	1.2	4.0	28	B	
218-01-9-----	Chrysene	1.3	4.8	17	B	
53-70-3-----	Dibenz (a, h) anthracene	1.8	5.9	13	B	
206-44-0-----	Fluoranthene	2.0	5.9	45		
86-73-7-----	Fluorene	1.4	4.8	3.6	J	J
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	1.8	5.9	20	B	u
91-20-3-----	Naphthalene	2.8	7.9		U	u
85-01-8-----	Phenanthrene	2.0	5.9	22		
129-00-0-----	Pyrene	1.8	5.9	31		

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-005

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-05

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305605

% Moisture: 16 decanted: (Y/N) N Date Sampled: 03/03/09 15:20

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 16:13

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	Q	Rev Plat
83-32-9-----	Acenaphthene	1.4	4.8	7.6		
208-96-8-----	Acenaphthylene	1.3	4.8	3.8	J	J
120-12-7-----	Anthracene	0.95	4.0	17		
56-55-3-----	Benzo(a)anthracene	1.7	4.8	83	B	
205-99-2-----	Benzo(b)fluoranthene	1.8	5.9	93	B	
207-08-9-----	Benzo(k)fluoranthene	1.5	4.8	33	B	
191-24-2-----	Benzo(g,h,i)perylene	1.7	5.9	59	B	
50-32-8-----	Benzo(a)pyrene	1.2	4.0	88	B	
218-01-9-----	Chrysene	1.3	4.8	54	B	
53-70-3-----	Dibenz(a,h)anthracene	1.8	5.9	25	B	u 60
206-44-0-----	Fluoranthene	2.0	5.9	170		
86-73-7-----	Fluorene	1.4	4.8	8.2		
193-39-5-----	Indeno(1,2,3-cd)pyrene	1.8	5.9	58	B	
91-20-3-----	Naphthalene	2.8	7.9	6.8	J	J
85-01-8-----	Phenanthrene	2.0	5.9	82		
129-00-0-----	Pyrene	1.8	5.9	130		

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-006

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-06

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305606

% Moisture: 16 decanted: (Y/N) N Date Sampled: 03/03/09 15:30

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 09:56

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG	Q	Rev
		MDL	(ug/L or ug/Kg) RL CONC			
83-32-9-----	Acenaphthene	1.4	4.8	U	u	
208-96-8-----	Acenaphthylene	1.3	4.8	3.1 J	J	
120-12-7-----	Anthracene	0.95	4.0	2.1 J	J	
56-55-3-----	Benzo (a) anthracene	1.7	4.8	12 B	u	ba
205-99-2-----	Benzo (b) fluoranthene	1.8	5.9	15 B		
207-08-9-----	Benzo (k) fluoranthene	1.5	4.8	3.4 JB		
191-24-2-----	Benzo (g, h, i) perylene	1.7	5.9	12 B		
50-32-8-----	Benzo (a) pyrene	1.2	4.0	17 B		
218-01-9-----	Chrysene	1.3	4.8	10 B		
53-70-3-----	Dibenz (a, h) anthracene	1.8	5.9	11 B		
206-44-0-----	Fluoranthene	2.0	5.9	16		
86-73-7-----	Fluorene	1.4	4.8	2.3 J	J	
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	1.8	5.9	14 B	u	ba
91-20-3-----	Naphthalene	2.8	7.9	U	u	
85-01-8-----	Phenanthrene	2.0	5.9	6.4		
129-00-0-----	Pyrene	1.8	5.9	11		

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-007

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-07

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305607D

% Moisture: 19 decanted: (Y/N) N Date Sampled: 03/03/09 15:45

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 15:16

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	UG/KG Q
83-32-9-----	Acenaphthene	15	50	140	D
208-96-8-----	Acenaphthylene	14	50		UD
120-12-7-----	Anthracene	9.9	41	300	D
56-55-3-----	Benzo (a) anthracene	17	50	1400	BD
205-99-2-----	Benzo (b) fluoranthene	19	62	1500	BD
207-08-9-----	Benzo (k) fluoranthene	16	50	480	BD
191-24-2-----	Benzo (g,h,i) perylene	18	62	820	BD
50-32-8-----	Benzo (a) pyrene	12	41	1300	BD
218-01-9-----	Chrysene	13	50	990	BD
53-70-3-----	Dibenz (a,h) anthracene	19	62	360	BD
206-44-0-----	Fluoranthene	21	62	3000	D
86-73-7-----	Fluorene	15	50	130	D
193-39-5-----	Indeno (1,2,3-cd) pyrene	19	62	840	BD
91-20-3-----	Naphthalene	29	83	110	D
85-01-8-----	Phenanthrene	21	62	1500	D
129-00-0-----	Pyrene	19	62	2100	D

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-008

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-08

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305608

% Moisture: 15 decanted: (Y/N) N Date Sampled: 03/03/09 15:55

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 10:24

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	MDL	CONCENTRATION UNITS: (ug/L or ug/Kg) RL CONC	UG/KG Q	Rev
83-32-9-----	Acenaphthene	1.4	4.7	U	u
208-96-8-----	Acenaphthylene	1.3	4.7	3.0 J	J
120-12-7-----	Anthracene	0.94	3.9	2.0 J	J
56-55-3-----	Benzo (a) anthracene	1.6	4.7	9.3 B	u
205-99-2-----	Benzo (b) fluoranthene	1.8	5.9	10 B	
207-08-9-----	Benzo (k) fluoranthene	1.5	4.7	2.0 JB	
191-24-2-----	Benzo (g,h,i) perylene	1.7	5.9	9.2 B	
50-32-8-----	Benzo (a) pyrene	1.2	3.9	14 B	
218-01-9-----	Chrysene	1.3	4.7	7.5 B	
53-70-3-----	Dibenz (a,h) anthracene	1.8	5.9	U	u
206-44-0-----	Fluoranthene	2.0	5.9	11	
86-73-7-----	Fluorene	1.4	4.7	2.6 J	J
193-39-5-----	Indeno (1,2,3-cd) pyrene	1.8	5.9	12 B	u
91-20-3-----	Naphthalene	2.8	7.9	U	u
85-01-8-----	Phenanthrene	2.0	5.9	5.4 J	J
129-00-0-----	Pyrene	1.8	5.9	7.3	

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-009

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-09

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305609

% Moisture: 13 decanted: (Y/N) N Date Sampled: 03/03/09 16:00

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0(uL) Date Analyzed: 03/25/09 10:53

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG Q	
		MDL	(ug/L or ug/Kg) RL CONC		
83-32-9-----	Acenaphthene	1.4	4.6	3.7	J J
208-96-8-----	Acenaphthylene	1.3	4.6		U u
120-12-7-----	Anthracene	0.92	3.8	8.5	
56-55-3-----	Benzo(a)anthracene	1.6	4.6	23	B u
205-99-2-----	Benzo(b)fluoranthene	1.8	5.7	24	B
207-08-9-----	Benzo(k)fluoranthene	1.4	4.6	6.7	B
191-24-2-----	Benzo(g,h,i)perylene	1.7	5.7	18	B
50-32-8-----	Benzo(a)pyrene	1.1	3.8	27	B
218-01-9-----	Chrysene	1.2	4.6	16	B
53-70-3-----	Dibenz(a,h)anthracene	1.8	5.7	12	B
206-44-0-----	Fluoranthene	1.9	5.7	48	
86-73-7-----	Fluorene	1.4	4.6	5.0	
193-39-5-----	Indeno(1,2,3-cd)pyrene	1.8	5.7	19	B u
91-20-3-----	Naphthalene	2.7	7.6		U u
85-01-8-----	Phenanthrene	1.9	5.7	29	
129-00-0-----	Pyrene	1.8	5.7	34	

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-010

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-10

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305610D

% Moisture: 17 decanted: (Y/N) N Date Sampled: 03/03/09 16:05

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 14:47

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	Q
83-32-9-----	Acenaphthene	14	48	510	D
208-96-8-----	Acenaphthylene	14	48		UD
120-12-7-----	Anthracene	9.7	40	850	D
56-55-3-----	Benzo (a) anthracene	17	48	2200	BD
205-99-2-----	Benzo (b) fluoranthene	18	60	2700	BD
207-08-9-----	Benzo (k) fluoranthene	15	48	900	BD
191-24-2-----	Benzo (g, h, i) perylene	18	60	1200	BD
50-32-8-----	Benzo (a) pyrene	12	40	2000	BD
218-01-9-----	Chrysene	13	48	1500	BD
53-70-3-----	Dibenz (a, h) anthracene	18	60	500	BD
206-44-0-----	Fluoranthene	20	60	5500	D
86-73-7-----	Fluorene	14	48	450	D
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	18	60	1200	BD
91-20-3-----	Naphthalene	28	81	200	D
85-01-8-----	Phenanthrene	20	60	4000	D
129-00-0-----	Pyrene	18	60	3800	D

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-011

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-11

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305611

% Moisture: 21 decanted: (Y/N) N Date Sampled: 03/03/09 16:20

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 11:21

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	UG/KG Q	Rev Qual
83-32-9-----	Acenaphthene	1.5	5.1		U	u
208-96-8-----	Acenaphthylene	1.4	5.1		U	u
120-12-7-----	Anthracene	1.0	4.2		U	u
56-55-3-----	Benzo (a) anthracene	1.8	5.1	7.4	B	u
205-99-2-----	Benzo (b) fluoranthene	1.9	6.3	8.1	B	u
207-08-9-----	Benzo (k) fluoranthene	1.6	5.1		U	u
191-24-2-----	Benzo (g, h, i) perylene	1.8	6.3	7.3	B	u
50-32-8-----	Benzo (a) pyrene	1.3	4.2	9.8	B	u
218-01-9-----	Chrysene	1.4	5.1	6.1	B	u
53-70-3-----	Dibenz (a, h) anthracene	1.9	6.3		U	u
206-44-0-----	Fluoranthene	2.1	6.3	5.8	J	J
86-73-7-----	Fluorene	1.5	5.1	2.6	J	J
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	1.9	6.3	10	B	u
91-20-3-----	Naphthalene	3.0	8.4		U	u
85-01-8-----	Phenanthrene	2.1	6.3	3.4	J	J
129-00-0-----	Pyrene	1.9	6.3	3.4	J	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-012

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-12

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305612

% Moisture: 15 decanted: (Y/N) N Date Sampled: 03/03/09 16:35

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 17:39

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	Q	Rev July
83-32-9-----	Acenaphthene	1.4	4.7	82		
208-96-8-----	Acenaphthylene	1.3	4.7		U	u
120-12-7-----	Anthracene	0.94	3.9	170		
56-55-3-----	Benzo (a) anthracene	1.6	4.7	550	B	
205-99-2-----	Benzo (b) fluoranthene	1.8	5.9	530	B	
207-08-9-----	Benzo (k) fluoranthene	1.5	4.7	180	B	
191-24-2-----	Benzo (g, h, i) perylene	1.7	5.9	280	B	u
50-32-8-----	Benzo (a) pyrene	1.2	3.9	480	B	
218-01-9-----	Chrysene	1.2	4.7	410	B	
53-70-3-----	Dibenz (a, h) anthracene	1.8	5.9	100	B	u
206-44-0-----	Fluoranthene	2.0	5.9	1200	E	R 16
86-73-7-----	Fluorene	1.4	4.7	68		
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	1.8	5.9	270	B	u
91-20-3-----	Naphthalene	2.8	7.9	22		
85-01-8-----	Phenanthrene	2.0	5.9	690		
129-00-0-----	Pyrene	1.8	5.9	840	E	R 16

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-012DL

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-12DL

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305612D

% Moisture: 15 decanted: (Y/N) N Date Sampled: 03/03/09 16:35

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 13:15

Injection Volume: 1.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	UG/KG Q	
83-32-9-----	Acenaphthene	7.1	24	79	D	R 16
208-96-8-----	Acenaphthylene	6.7	24		UD	R 16
120-12-7-----	Anthracene	4.7	20	150	D	R 16
56-55-3-----	Benzo (a) anthracene	8.2	24	500	BD	R 16
205-99-2-----	Benzo (b) fluoranthene	9.0	29	660	BD	R 16
207-08-9-----	Benzo (k) fluoranthene	7.5	24	170	BD	R 16
191-24-2-----	Benzo (g, h, i) perylene	8.6	29	310	BD	R 16
50-32-8-----	Benzo (a) pyrene	5.9	20	480	BD	R 16
218-01-9-----	Chrysene	6.3	24	320	BD	R 16
53-70-3-----	Dibenz (a, h) anthracene	9.0	29	130	BD	R 16
206-44-0-----	Fluoranthene	9.8	29	1100	D	R 16
86-73-7-----	Fluorene	7.1	24	67	D	R 16
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	9.0	29	300	BD	R 16
91-20-3-----	Naphthalene	14	39	21	JD	R 16
85-01-8-----	Phenanthrene	9.8	29	640	D	R 16
129-00-0-----	Pyrene	9.0	29	790	D	R 16

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-013

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-13

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305613

% Moisture: 16 decanted: (Y/N) N Date Sampled: 03/03/09 16:40

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 18:07

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG	Q	Res
		MDL	(ug/L or ug/Kg) RL CONC			
83-32-9-----	Acenaphthene	1.4	4.8	39		
208-96-8-----	Acenaphthylene	1.3	4.8		U	u
120-12-7-----	Anthracene	0.95	4.0	78		
56-55-3-----	Benzo(a)anthracene	1.7	4.8	340	B	
205-99-2-----	Benzo(b)fluoranthene	1.8	5.9	360	B	
207-08-9-----	Benzo(k)fluoranthene	1.5	4.8	110	B	tt
191-24-2-----	Benzo(g,h,i)perylene	1.7	5.9	180	B	tt
50-32-8-----	Benzo(a)pyrene	1.2	4.0	310	B	tt
218-01-9-----	Chrysene	1.3	4.8	250	B	tt
53-70-3-----	Dibenz(a,h)anthracene	1.8	5.9	73	B	tt
206-44-0-----	Fluoranthene	2.0	5.9	670		
86-73-7-----	Fluorene	1.4	4.8	30		
193-39-5-----	Indeno(1,2,3-cd)pyrene	1.8	5.9	180	B	tt
91-20-3-----	Naphthalene	2.8	7.9	24		
85-01-8-----	Phenanthrene	2.0	5.9	370		
129-00-0-----	Pyrene	1.8	5.9	470		

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-014

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-14

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305614

% Moisture: 15 decanted: (Y/N) N Date Sampled: 03/04/09 11:20

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/25/09 11:50

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG	Q	J
		MDL	(ug/L or ug/Kg) RL CONC			
83-32-9-----	Acenaphthene	1.4	4.7	2.6	J	J
208-96-8-----	Acenaphthylene	1.3	4.7		U	U
120-12-7-----	Anthracene	0.94	3.9	5.5		
56-55-3-----	Benzo (a) anthracene	1.6	4.7	22	B	u
205-99-2-----	Benzo (b) fluoranthene	1.8	5.9	23	B	
207-08-9-----	Benzo (k) fluoranthene	1.5	4.7	7.6	B	
191-24-2-----	Benzo (g, h, i) perylene	1.7	5.9	16	B	
50-32-8-----	Benzo (a) pyrene	1.2	3.9	24	B	
218-01-9-----	Chrysene	1.2	4.7	16	B	
53-70-3-----	Dibenz (a, h) anthracene	1.8	5.9	12	B	
206-44-0-----	Fluoranthene	2.0	5.9	44		
86-73-7-----	Fluorene	1.4	4.7	3.7	J	J
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	1.8	5.9	18	B	u
91-20-3-----	Naphthalene	2.8	7.9		U	u
85-01-8-----	Phenanthrene	2.0	5.9	27		
129-00-0-----	Pyrene	1.8	5.9	28		

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-015

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-15

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305615D

% Moisture: 13 decanted: (Y/N) N Date Sampled: 03/03/09 11:35

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 10:58

Injection Volume: 1.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL CONC	UG/KG Q	Rev Quint
83-32-9-----	Acenaphthene	6.8	23	69	D
208-96-8-----	Acenaphthylene	6.5	23		UD u
120-12-7-----	Anthracene	4.6	19	140	D
56-55-3-----	Benzo (a) anthracene	8.0	23	400	BD
205-99-2-----	Benzo (b) fluoranthene	8.8	28	410	BD
207-08-9-----	Benzo (k) fluoranthene	7.2	23	160	BD
191-24-2-----	Benzo (g, h, i) perylene	8.4	28	260	BD
50-32-8-----	Benzo (a) pyrene	5.7	19	400	BD
218-01-9-----	Chrysene	6.1	23	260	BD
53-70-3-----	Dibenz (a, h) anthracene	8.8	28	110	BD
206-44-0-----	Fluoranthene	9.5	28	980	D
86-73-7-----	Fluorene	6.8	23	64	D
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	8.8	28	250	BD
91-20-3-----	Naphthalene	13	38	37	JD
85-01-8-----	Phenanthrene	9.5	28	620	D
129-00-0-----	Pyrene	8.8	28	670	D

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-915

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-16

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305616D

% Moisture: 12 decanted: (Y/N) N Date Sampled: 03/03/09 11:35

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 11:26

Injection Volume: 1.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	Rev Q Quant
83-32-9-----	Acenaphthene	6.8	23	57	D
208-96-8-----	Acenaphthylene	6.5	23		UD u
120-12-7-----	Anthracene	4.6	19	120	D
56-55-3-----	Benzo (a) anthracene	8.0	23	290	BD
205-99-2-----	Benzo (b) fluoranthene	8.8	28	320	BD
207-08-9-----	Benzo (k) fluoranthene	7.2	23	100	BD
191-24-2-----	Benzo (g, h, i) perylene	8.4	28	220	BD
50-32-8-----	Benzo (a) pyrene	5.7	19	310	BD
218-01-9-----	Chrysene	6.1	23	200	BD
53-70-3-----	Dibenz (a, h) anthracene	8.8	28	100	BD u 60
206-44-0-----	Fluoranthene	9.5	28	760	D
86-73-7-----	Fluorene	6.8	23	55	D
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	8.8	28	210	BD u 60
91-20-3-----	Naphthalene	13	38	32	JD J
85-01-8-----	Phenanthrene	9.5	28	500	D
129-00-0-----	Pyrene	8.8	28	520	D

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-016

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-17

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305617

% Moisture: 16 decanted: (Y/N) N Date Sampled: 03/03/09 11:40

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 16:42

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG	Q
		MDL	(ug/L or ug/Kg) RL CONC		
83-32-9-----	Acenaphthene	1.4	4.7	U	u
208-96-8-----	Acenaphthylene	1.3	4.7	U	u
120-12-7-----	Anthracene	0.95	3.9	U	u
56-55-3-----	Benzo (a) anthracene	1.6	4.7	22 B	u
205-99-2-----	Benzo (b) fluoranthene	1.8	5.9	24 B	u
207-08-9-----	Benzo (k) fluoranthene	1.5	4.7	7.6 B	u
191-24-2-----	Benzo (g, h, i) perylene	1.7	5.9	15 B	u
50-32-8-----	Benzo (a) pyrene	1.2	3.9	25 B	u
218-01-9-----	Chrysene	1.3	4.7	17 B	u
53-70-3-----	Dibenz (a, h) anthracene	1.8	5.9	12 B	u
206-44-0-----	Fluoranthene	2.0	5.9	50	u
86-73-7-----	Fluorene	1.4	4.7	U	u
193-39-5-----	Indeno (1, 2, 3-cd) pyrene	1.8	5.9	18 B	u
91-20-3-----	Naphthalene	2.8	7.9	U	u
85-01-8-----	Phenanthrene	2.0	5.9	22	u
129-00-0-----	Pyrene	1.8	5.9	33	u

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-017

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-18

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305618

% Moisture: 15 decanted: (Y/N) N Date Sampled: 03/03/09 12:00

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/17/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/26/09 17:10

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG	
		MDL	(ug/L or ug/Kg) RL CONC		
83-32-9-----	Acenaphthene	1.4	4.7	18	
208-96-8-----	Acenaphthylene	1.3	4.7		U u
120-12-7-----	Anthracene	0.94	3.9	35	
56-55-3-----	Benzo (a) anthracene	1.6	4.7	82	B
205-99-2-----	Benzo (b) fluoranthene	1.8	5.8	76	B
207-08-9-----	Benzo (k) fluoranthene	1.5	4.7	26	B
191-24-2-----	Benzo (g,h,i) perylene	1.7	5.8	43	B
50-32-8-----	Benzo (a) pyrene	1.2	3.9	74	B
218-01-9-----	Chrysene	1.2	4.7	49	B
53-70-3-----	Dibenz (a,h) anthracene	1.8	5.8	20	B u 6a
206-44-0-----	Fluoranthene	2.0	5.8	180	
86-73-7-----	Fluorene	1.4	4.7	18	
193-39-5-----	Indeno (1,2,3-cd) pyrene	1.8	5.8	45	B u 6a
91-20-3-----	Naphthalene	2.7	7.8	8.6	
85-01-8-----	Phenanthrene	2.0	5.8	130	
129-00-0-----	Pyrene	1.8	5.8	120	

FORM I SV

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: 0903056 Matrix/No. Samples: S-19

I. Technical Holding Times						
A. Sample Preservation, Handling and Transport						
1. Have all samples been preserved correctly?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
2. Have sample temperatures been kept at 4° C (+ or - 2°)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
3. Were all samples received in proper condition?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
4. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A			
Coolers @ <u>2.1°C</u> ,						
B. Chain of Custody						
1. Were all samples properly recorded on COCs?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
2. Were correct analyses performed on samples?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
C. Holding Times						
1. Were samples extracted and analyzed within acceptable holding times?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
2. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A			
<table style="width:100%; border: none;"> <tr> <td style="width:33%; text-align: center;">SAMPLED <u>3/3</u></td> <td style="width:33%; text-align: center;">PREPPED <u>3/17</u></td> <td style="width:33%; text-align: center;">ANALYZED <u>3/25, 3/26</u></td> </tr> </table>				SAMPLED <u>3/3</u>	PREPPED <u>3/17</u>	ANALYZED <u>3/25, 3/26</u>
SAMPLED <u>3/3</u>	PREPPED <u>3/17</u>	ANALYZED <u>3/25, 3/26</u>				
II. GC/MS Instrument Performance Check						
1. Were instrument performance check samples run for each analysis period?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
2. Were ion abundance criteria met for DTFPP analysis?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A			
3. Do laboratory forms match raw data?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A			
4. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A			
Comments/Qualifications: <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <u>3/13 @ 8:29</u> 148 base all criteria met. </div> <div style="text-align: center;"> <u>3/25</u> 03, 04, 06, 08 09, 11, 14, 02, 12DL </div> <div style="text-align: center;"> <u>3/26</u> 15, 16, 10, 07, 01, 05 17, 18, 12, 13. </div> </div>						

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: ...3056 Matrix/No. Samples: S-19

III. Initial Calibration			
1. Were correct concentrations of standards used for initial calibration? Were samples analyzed within 12 hours of associated instrument performance check?	<input checked="" type="radio"/> Yes	No	N/A
2. Were initial calibration RRFs for all volatile target compounds and system monitoring compounds ≥ 0.05 ? Do recalculations for RRFs agree with reported values?	<input checked="" type="radio"/> Yes	No	N/A
3. Were %RSDs $\leq 30\%$ for all volatile target compounds? Do recalculations for RSDs agree with reported values?	<input checked="" type="radio"/> Yes	No	N/A
4. Were any qualifications required based on this information?	Yes	<input checked="" type="radio"/> No	N/A
<p>Comments/Qualifications:</p> <p>3/13 @ 8:48 benzo(a)pyrene $R^2 @ 70.99$ $RSD's @ < 14$</p> <p> $\left. \begin{array}{l} .393 \\ .446 \\ .393 \\ .411 \\ .513 \\ .740 \\ .820 \\ 1.338 \\ 1.289 \end{array} \right\} \text{line}$ </p> <p>0.10638 $\rightarrow R^2 @ 70.99$</p> <p align="right">RTs ✓</p>			
IV. Continuing Calibration			
1. Were continuing calibration samples run at the required frequency, and compared to the correct initial calibration?	<input checked="" type="radio"/> Yes	No	N/A
2. Did calculations from raw data agree with laboratory reported values for RRF and %D?	Yes	No	<input checked="" type="radio"/> N/A
3. Were continuing calibration RRFs for volatile organic compounds and system monitoring compounds (surrogates) ≥ 0.05 ?	<input checked="" type="radio"/> Yes	No	N/A
4. Were %D between initial calibration RRF and the continuing calibration RRFs within $\pm 25\%$?	<input checked="" type="radio"/> Yes	No	N/A
5. Were any qualifications required based on this information?	Yes	<input checked="" type="radio"/> No	N/A
<p>Comments/Qualifications:</p> <p>3/25 @ 5:11 $\%D < 18\%$</p> <p> $\text{Chrys. } \frac{2.401 - 2.144}{2.401} = 10.7\%$ $\text{Phenan. } \frac{1.329 - 1.147}{1.147} = 15.9\%$ $\text{dibenz. } \frac{5.744 - 5.00}{5.00} = 14.9\%$ </p> <p>3/26 @ 10:00 $\%D < 16\%$</p>			

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: ...3556 Matrix/No. Samples: 5-19

V. Blanks			
1. Were any target or non-target compounds reported in laboratory prep or calibration blanks?	<u>Yes</u>	No	N/A
2. Were method blank analyses performed at required frequency, and for each GC/MS system used to analyze samples for each type of analysis (i.e., matrix)?	<u>Yes</u>	No	N/A
3. Were any qualifications required based on this information?	<u>Yes</u>	No	N/A
<p>Comments/Qualifications: <u>SPBLK03171351</u></p> <p> <u>Benz (a) ... 6.2 31</u> <u>Benz (b) ... 6.0 30</u> <u>Benz (c) ... 3.4 17</u> <u>Benz (ghi) ... 7.2 36</u> <u>Benz(a)pyrene ... 8.0 40</u> <u>Chrysene ... 6.9 34.5</u> </p> <p> <u>dibenz ... 11.0 55</u> <u>indeno ... 10.0 56</u> <u>See page 2,</u> </p>			
VI. System Monitoring Compounds (Surrogate Spikes)			
1. Were laboratory surrogate recoveries calculated and reported correctly?	<u>Yes</u>	No	N/A
2. Were surrogate recoveries within acceptable limits?	<u>Yes</u>	No	N/A
3. Were any qualifications required based on surrogate spike QC information?	Yes	<u>No</u>	N/A
<p>Comments/Qualifications: <u>51</u> <u>52</u></p> <p> <u>38.0</u> <u>58-84</u> <u>53-84</u> </p>			
VII. Matrix Spikes/Matrix Spike Duplicates			
1. Were MS/MSD samples analyzed at required frequency for each sample matrix?	<u>Yes</u>	No	N/A
2. Were MS/MSD results for recovery and RPD within advisory limits?	<u>Yes</u>	No	N/A
3. Were Samples used for MS/MSD field blanks?	Yes	<u>No</u>	N/A
4. Were laboratory reported results correctly calculated from raw data?	Yes	No	<u>N/A</u>
5. Were any qualifications required, based on results of MS/MSD samples in conjunction with other QC information?	Yes	<u>No</u>	N/A
<p>Comments/Qualifications:</p> <p> <u>10-6 MS - 76-3687</u> <u>- 6 high.</u> <u>MSD - 73-3231</u> <u>10-6 - 6 high</u> </p> <p> <u>B(K)f</u> <u>85.71 - 7.60</u> <u>76.36 - 7.60</u> / <u>78.62</u> = <u>99.42</u> <u>= 87.52</u> </p> <p> <u>RPD = 9.35</u> <u>81.035 = 11.52</u> </p>			

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: ...3056 Matrix/No. Samples: S-19

VIII. Laboratory Control Sample (LCS)			
1. Were LCS samples run at correct frequency for each matrix samples?	<u>Yes</u>	No	N/A
2. Were LCS calculations performed correctly, and did laboratory reported values match raw data? Were recoveries within laboratory QC limits?	<u>Yes</u>	No	N/A
4. Were any qualifications required based on LCS data in conjunction with other QC information?	Yes	<u>No</u>	N/A
Comments/Qualifications: <u>43-94</u> <u>Anthra. 55.02/66.67 = 82.5%</u> <u>Pyrene 51.19/66.67 = 76.8%</u>			
IX. Internal Standards			
1. Were standard area counts within a factor of two (-50% to +100%) from associated calibration standard?	<u>Yes</u>	No	N/A
2. Were retention times of internal standard within + or - 30 seconds of retention time of associated calibration check?	<u>Yes</u>	No	N/A
3. Were any qualifications required based on internal standard results?	Yes	<u>No</u>	N/A
Comments/Qualifications: <u>002 IS1 $\frac{165479}{143598} = 115.2\%$ $\frac{8.79}{8.79}$</u> <u>017 IS2 $\frac{99048}{85739} = 115.5\%$ $\frac{13.72}{13.72}$</u>			
X. Target Compound Identification			
1. Are relative retention times (RRTs) within + or - 0.06 RRT units of standard RRT?	Yes	No	<u>N/A</u>
2. Do sample compound spectra meet specified criteria in relation to laboratory standard spectra?	Yes	No	<u>N/A</u>
3. Were all compounds accounted for on chromatogram?	Yes	No	<u>N/A</u>
Comments/Qualifications: <u>No raw data - level III</u>			

**DATA VALIDATION WORKSHEETS
SEMI-VOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: 1-3056 Matrix/No. Samples: S-19

XI. Compound Quantitation and Reported Contract Required Quantitation Limits (CRQLs)			
1. Were sample results correctly calculated and reported by laboratory?	Yes	No	<u>N/A</u>
2. Were correct internal standard quantitation ion and RRF used to quantify all compounds for all samples?	Yes	No	N/A
3. Were CRQLs adjusted to reflect sample dilutions and dry weight factors not accounted for by the method?	Yes	No	N/A
4. Were any laboratory QA/QC sample results calculated from peaks derived using manual integration?	Yes	No	N/A
5. Were any qualifications required based on this information?	Yes	No	N/A
Comments/Qualifications: <p align="center"><i>No raw data - level III</i></p>			
XII. Field QC			
1. Were any Field Duplicates associated with this SDG?	<u>Yes</u>	No	N/A
a. If Yes, were RPDs acceptable <u>30%</u> for water samples, <u>50%</u> for soil samples?	<u>Yes</u>	<u>No</u>	N/A
2. Were any field blanks or equipment rinsates associated with this SDG?	Yes	<u>No</u>	N/A
a. If yes, were any compounds reported in samples >IDL?	Yes	No	N/A
b. Were any qualifications required based on this information?	<u>Yes</u>	No	N/A
Comments/Qualifications: <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>902</u> <u>902</u></p> <p>520 Chrysene 390 - 28.6%</p> <p><u>5</u> - 46 Naphth. 120 = 89.22</p> <p>all others - OK.</p> </div> <div style="width: 45%;"> <p><u>015</u> <u>915</u></p> <p>400 benz(a)anth 290 - 31.9%</p> <p>620 Phenanth. 580 - 21.4%</p> <p>670 pyrene. 520 - 25.2%</p> <p>others OK.</p> </div> </div>			
XIII. Overall Assessment of Data			
1. Are there any specific concerns or limitations regarding the data in this SDG?	Yes	<u>No</u>	N/A
Comments/Qualifications:			

EMPIRICAL LABORATORIES, LLC - CHAIN OF CUSTODY RECORD
SHIP TO: 621 Mainstream Drive, Suite 270 • Nashville, TN 37228 • 615-345-1115 • (fax) 615-846-5426

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Send Results to:		Send Invoice to:		Analysis Requirements:										Lab Use Only:			
Name <u>DOUG HAWN</u>		Name <u>SAME</u>		8270 LOW LEVEL	TCLP VOC	TCLP SVOC	TCLP PEST/HERB	TCLP METALS	REACTIVE SULFIDE/CYANIDE /AMMONIUM CARBONATE	SVOC	PEST	TOTAL METALS	VOC	VOA Headspace	Y	N	<u>NA</u>
Company <u>S&S LLC</u>		Company _____												Field Filtered	Y	N	NA
Address <u>1006 FLOYD CULLER</u>		Address _____												Correct Containers	<u>Y</u>	N	NA
City <u>DAK RIDGE</u>		City _____												Discrepancies	Y	N	NA
State, Zip <u>TN 37830</u>		State, Zip _____												Cust. Seals Intact	<u>Y</u>	N	NA
Phone <u>865-481-7837</u>		Phone _____		Containers Intact	<u>Y</u>	N	NA	Airbill #: <u>FX 9002</u>		CAR #:							
Fax <u>DHAWN@SPELPROENV.COM</u>		Fax _____															
E-mail _____		E-mail _____															
Project No./Name: <u>ALAAP E01590002</u>				Sampler's (Signature): <u>[Signature]</u>													
Lab Use Only Lab #	Date/Time Sampled	Sample Description	Sample Matrix											Comments	No. of Bottles	Lab Use Only Containers/Pres.	
<u>0903056</u>	<u>-13</u>	<u>3/3/09</u>	<u>16:40</u>	<u>AL2403-SS-013</u>	<u>SOIL</u>	<u>X</u>								<u>3/3/09</u>	<u>1</u>	<u>1m</u>	
	<u>-14</u>	<u>3/4/09</u>	<u>11:20</u>	<u>AL2403-SS-014</u>		<u>X</u>								<u>+ms/msd</u>	<u>2</u>	<u>2m</u>	
	<u>-15</u>	<u>11:35</u>		<u>AL2403-SS-015</u>		<u>X</u>								<u>3/4/09</u>		<u>1m</u>	
	<u>-16</u>	<u>11:35</u>		<u>AL2403-SS-015</u>		<u>X</u>											
	<u>-17</u>	<u>11:40</u>		<u>AL2403-SS-016</u>		<u>X</u>											
	<u>-18</u>	<u>12:00</u>		<u>AL2403-SS-017</u>		<u>X</u>											
	<u>-19</u>	<u>12:26</u>		<u>AL2403-SS-018</u>						<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		<u>4</u>	<u>4m</u>	
	<u>-20</u>	<u>12:20</u>		<u>AL2403-SS-019</u>		<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>					<u>4</u>	<u>↓</u>	
	<u>-21</u>	<u>12:20</u>		<u>6814 (TRIP BLANK)</u>	<u>WATER</u>							<u>X</u>			<u>2</u>	<u>25-HY</u>	
Sample Kit Prep'd by: (Signature)				Date/Time	Received By: (Signature)									REMARKS: <u>SOIL VOC SAMPLE COLLECTED IN</u> <u>40Z GLASS JAR, PER</u> <u>DOUG HAWN (S&S)</u>			
Relinquished by: (Signature)				Date/Time	Received By: (Signature)												
Relinquished by: (Signature)				Date/Time	Received By: (Signature)												
Received for Laboratory by: (Signature)				Date/Time	Temperature												
<u>[Signature]</u>				<u>0900</u> <u>3-5-09</u>	<u>2.1°C</u>									Details: Page <u>2</u> of <u>2</u> Cooler No. <u>1</u> of <u>1</u> Date Shipped <u>3/4/09</u> Shipped By <u>JE (H&E)</u> Turnaround _____			

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers.

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Send Results to:		Send Invoice to:		Analysis Requirements:												Lab Use Only:									
Name <u>DOUG HAWN</u>		Name <u>SAME</u>		LOW LEVEL														VOA Headspace Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/>							
Company <u>SES LLC</u>		Company _____																Field Filtered Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA <input type="checkbox"/>							
Address <u>1006 FLOODCULLER</u>		Address _____																Correct Containers Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>							
City <u>DAK RIDGE, TN</u>		City _____																Discrepancies Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA <input type="checkbox"/>							
State, Zip <u>TN 37830</u>		State, Zip _____																Cust. Seals Intact Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>							
Phone <u>865-481-7837</u>		Phone _____															Containers Intact Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>								
Fax _____		Fax _____															Airbill #: <u>FX 9002</u>								
E-mail <u>D.HAWN@SESLABOR.COM</u>		E-mail _____															CAR #: _____								
Project No./Name: <u>ALAAP E0159.0002</u>				Sampler's (Signature): <u>[Signature]</u>																					
Lab Use Only Lab #		Date/Time Sampled		Sample Description		Sample Matrix														Comments		No. of Bottles		Lab Use Only Containers/Pres.	
0903056 -01		3/3/09 14:45		AL2403-SS-002		Soil		X														1		1M	
-02		14:45		AL2403-SS-002		Soil		X														1			
-03		14:50		AL2403-SS-003				X														1			
-04		14:55		AL2403-SS-004				X														1			
-05		15:20		AL2403-SS-005				X														1			
-06		15:36		AL2403-SS-006				X														1			
-07		15:45		AL2403-SS-007				X														1			
-08		15:55		AL2403-SS-008				X														1			
-09		16:00		AL2403-SS-009				X														1			
-10		16:05		AL2403-SS-010				X														1			
-11		16:20		AL2403-SS-011				X														1			
-12		16:35		AL2403-SS-012				X														1			
Sample Kit Prep'd by: (Signature)				Date/Time		Received By: (Signature)				REMARKS:												Details: Page <u>1</u> of <u>2</u> Cooler No. <u>1</u> of <u>1</u> Date Shipped <u>3/4/09</u> Shipped By <u>JC (FX)</u> Turnaround _____			
Relinquished by: (Signature)				Date/Time		Received By: (Signature)																			
Relinquished by: (Signature)				Date/Time		Received By: (Signature)																			
Received for Laboratory by: (Signature)				Date/Time		Temperature																			
<u>[Signature]</u>				3/4/09 16:00		<u>[Signature]</u>																			
<u>[Signature]</u>				3-5-09		<u>[Signature]</u>																			
<u>[Signature]</u>				0900		2.1°C																			

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers.

SDG: 090356 Project: ALAAP

Method: Volatiles 8260B Matrix/No. Samples: Soil - 1

Validation Samples: AL2403-SS-018

Data Validation Report Summary

	Status Code	Comments
1. Sample Preservation, Handling, and Transport	<u>A</u>	<u></u>
2. Chain of Custody	<u>A</u>	<u></u>
3. Holding Times	<u>A</u>	<u></u>
4. GC/MS Tune/Inst Perf	<u>A</u>	<u></u>
5. Calibrations	<u>A</u>	<u></u>
6. Blanks	<u>X</u>	<u></u>
7. Blank Spike/LCS	<u>A</u>	<u></u>
8. Matrix Spike	<u>N/A</u>	<u></u>
9. Surrogates	<u>A</u>	<u></u>
10. Internal Standards	<u>A</u>	<u></u>
11. Compound Identification	<u>A</u>	<u></u>
12. System Performance	<u>A</u>	<u></u>
13. Field QC Samples	<u>A</u>	<u></u>
14. Overall Assessment	<u>X</u>	<u></u>

Status Codes:

A = Acceptable

R = Data Rejected

X = Data acceptable but qualified due to problems

Qualifications:

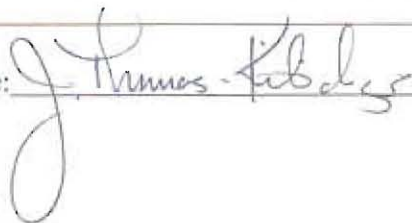
6a. The presence of xylene in the method blank resulted in a "u" qualifier for that compound in sample...SS-018.

Significant Findings/Recommendations:

Overall Data Quality:

Acceptable as qualified.

Validator's Signature:



Date:

4/9/2009

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-018

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.V03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-19

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 0305619A

Level: (low/med) LOW Date Sampled: 03/03/09 12:20

% Moisture: not dec. 23 Date Analyzed: 03/14/09 02:39

GC Column: RTX-VRX ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG	Q
		MDL	(ug/L or ug/Kg) RL CONC		
67-64-1-----	Acetone	2.6	65	15	J
71-43-2-----	Benzene	0.61	6.5		U
75-27-4-----	Bromodichloromethane	0.39	6.5		U
75-25-2-----	Bromoform	1.3	6.5		U
74-83-9-----	Bromomethane	0.94	13		U
78-93-3-----	2-Butanone	1.8	65		U
75-15-0-----	Carbon disulfide	1.7	6.5		U
56-23-5-----	Carbon tetrachloride	1.1	6.5		U
108-90-7-----	Chlorobenzene	0.44	6.5		U
75-00-3-----	Chloroethane	1.4	13		U
67-66-3-----	Chloroform	0.72	6.5		U
74-87-3-----	Chloromethane	0.68	13		U
110-82-7-----	Cyclohexane	0.70	13		U
124-48-1-----	Dibromochloromethane	0.44	6.5		U
96-12-8-----	1,2-Dibromo-3-chloropropane	1.6	13		U
106-93-4-----	1,2-Dibromoethane	0.56	6.5		U
95-50-1-----	1,2-Dichlorobenzene	0.48	6.5		U
541-73-1-----	1,3-Dichlorobenzene	1.1	6.5		U
106-46-7-----	1,4-Dichlorobenzene	0.72	6.5		U
75-71-8-----	Dichlorodifluoromethane	1.4	13		U
75-34-3-----	1,1-Dichloroethane	0.70	6.5		U
107-06-2-----	1,2-Dichloroethane	0.60	6.5		U
75-35-4-----	1,1-Dichloroethene	1.6	6.5		U
156-59-2-----	cis-1,2-Dichloroethene	1.6	6.5		U
156-60-5-----	trans-1,2-Dichloroethene	1.4	6.5		U
78-87-5-----	1,2-Dichloropropane	0.60	6.5		U
10061-01-5----	cis-1,3-Dichloropropene	0.65	6.5		U
10061-02-6----	trans-1,3-Dichloropropene	0.42	6.5		U
100-41-4-----	Ethylbenzene	0.98	6.5		U
591-78-6-----	2-Hexanone	3.0	32		U
98-82-8-----	Isopropylbenzene	1.1	6.5		U
79-20-9-----	Methyl acetate	2.1	6.5		U
75-09-2-----	Methylene chloride	0.81	13	18	U
108-87-2-----	Methyl cyclohexane	0.39	6.5		U
1634-04-4-----	MTBE	0.42	6.5		U
108-10-1-----	4-Methyl-2-pentanone	0.76	32		U
100-42-5-----	Styrene	0.46	6.5		U
79-34-5-----	1,1,2,2-Tetrachloroethane	0.56	6.5		U
127-18-4-----	Tetrachloroethene	1.3	6.5		U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-018

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.V03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-19

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 0305619A

Level: (low/med) LOW Date Sampled: 03/03/09 12:20

% Moisture: not dec. 23 Date Analyzed: 03/14/09 02:39

GC Column: RTX-VRX ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		UG/KG Q	
		MDL	(ug/L or ug/Kg) RL CONC		
108-88-3-----	Toluene	1.1	6.5	U	u
120-82-1-----	1,2,4-Trichlorobenzene	0.23	6.5	U	
71-55-6-----	1,1,1-Trichloroethane	1.2	6.5	U	
79-00-5-----	1,1,2-Trichloroethane	0.46	6.5	U	
79-01-6-----	Trichloroethene	1.1	6.5	U	
76-13-1-----	Trichlorotrifluoroethane	0.72	6.5	U	
75-69-4-----	Trichlorofluoromethane	1.2	13	U	
75-01-4-----	Vinyl chloride	1.4	13	U	
1330-20-7-----	Xylene (total)	0.91	6.5	6.5-1.2 JB	u 6m

FORM I VOA

**DATA VALIDATION WORKSHEETS
VOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: ...3056 Matrix/No. Samples: 5-1

I. Technical Holding Times			
A. Sample Preservation, Handling and Transport			
1. Have all samples been preserved correctly?	<input checked="" type="radio"/> Yes	No	N/A
2. Have sample temperatures been kept at 4° C (+ or - 2 °)?	<input checked="" type="radio"/> Yes	No	N/A
3. Were all samples received in proper condition?	<input checked="" type="radio"/> Yes	No	N/A
4. Were any qualifications required based on this information?	Yes	<input checked="" type="radio"/> No	N/A
Coolers @ <u>2.1°C</u>			
B. Chain of Custody			
1. Were all samples properly recorded on COCs?	<input checked="" type="radio"/> Yes	No	N/A
2. Were correct analyses performed on samples?	<input checked="" type="radio"/> Yes	No	N/A
C. Holding Times			
1. Were samples extracted and analyzed within acceptable holding times?	<input checked="" type="radio"/> Yes	No	N/A
2. Were any qualifications required based on this information?	Yes	<input checked="" type="radio"/> No	N/A
SAMPLED <u>3/4</u>	PREPPED	ANALYZED <u>3/14</u>	
II. GC/MS Instrument Performance Check			
1. Were instrument performance check samples run for each analysis period?	<input checked="" type="radio"/> Yes	No	N/A
2. Were ion abundance criteria met for BFB analysis?	<input checked="" type="radio"/> Yes	No	N/A
3. Do laboratory forms match raw data?	Yes	No	<input checked="" type="radio"/> N/A
4. Were any qualifications required based on this information?	Yes	<input checked="" type="radio"/> No	N/A
Comments/Qualifications: <u>3/1 @ 11:29</u> <u>3/13 @ 15:46</u> <u>95 base</u> <u>all criteria met.</u>			

DATA VALIDATION WORKSHEETS
VOLATILE ORGANICS

Reviewer: Kitchings Date: 4/9

Project: ALAP SDG: 356 Matrix/No. Samples: 5-1

III. Initial Calibration			
1. Were correct concentrations of standards used for initial calibration? Were samples analyzed within 12 hours of associated instrument performance check?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were initial calibration RRFs for all volatile target compounds and system monitoring compounds ≥ 0.05 ? Do recalculations for RRFs agree with reported values?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Were %RSDs $\leq 30\%$ for all volatile target compounds? Do recalculations for RSDs agree with reported values?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
4. Were any qualifications required based on this information?	Yes	<input checked="" type="radio"/> No	N/A
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Comments/Qualifications:</p> <p>$R^2 = 0.99$ RRF > 0.1 RSD $< 15\%$</p> </div> <div style="width: 30%;"> <p>methy. chlor.</p> <p>$.185$ $.285$ $.205$ $.204$ $.234$ $.236$ $.234$ $.271$ $.232$</p> </div> <div style="width: 30%;"> <p>$.00221$ $.281$ $.84$ $.28$ $.2$ $.2$ $.4$ $.152$ $\sqrt{.00844}$ $.7$</p> </div> <div style="width: 30%;"> <p>$= \frac{.0347}{.232} = 15\%$</p> </div> </div>			
IV. Continuing Calibration			
1. Were continuing calibration samples run at the required frequency, and compared to the correct initial calibration?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Did calculations from raw data agree with laboratory reported values for RRF and %D?	Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
3. Were continuing calibration RRFs for volatile organic compounds and system monitoring compounds (surrogates) ≥ 0.05 ?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
4. Were %D between initial calibration RRF and the continuing calibration RRFs within $\pm 25\%$?	Yes	<input checked="" type="radio"/> No	N/A
5. Were any qualifications required based on this information?	Yes	<input checked="" type="radio"/> No	N/A
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Comments/Qualifications:</p> <p>%D:</p> <p>Xylene @ 42.7</p> <p>\rightarrow "u" qualifiers for blank contam.</p> </div> <div style="width: 30%;"> <p>Benzene $\frac{1.021 - .953}{.953} = 7.1\%$</p> <p>1,2-dichloro $\frac{.294 - .286}{.294} = 2.7\%$</p> <p>Toluene $\frac{1.629 - 1.502}{1.502} = 8.5\%$</p> </div> <div style="width: 30%;"> </div> </div>			

**DATA VALIDATION WORKSHEETS
VOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAI SDG: 3056 Matrix/No. Samples: S-1

V. Blanks			
1. Were any target or non-target compounds reported in laboratory prep or calibration blanks?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
2. Were method blank analyses performed at required frequency, and for each GC/MS system used to analyze samples for each type of analysis (i.e., matrix)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
3. Were any qualifications required based on this information?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Comments/Qualifications: <div style="text-align: center;"> <p> <i>3/13 @ 21:59</i> <i>Ethylb, 2.6</i> <i>1,2,4 TCB @ 0.28</i> <i>xylene @ 10. - " "</i> </p> </div>			
VI. System Monitoring Compounds (Surrogate Spikes)			
1. Were laboratory surrogate recoveries calculated and reported correctly?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
2. Were surrogate recoveries within acceptable limits?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
3. Were any qualifications required based on surrogate spike QC information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> N/A
Comments/Qualifications: <div style="text-align: center;"> <p> <i>4-0</i> <i>117, 113, 127, 91</i> </p> </div>			
VII. Matrix Spikes/Matrix Spike Duplicates			
1. Were MS/MSD samples analyzed at required frequency for each sample matrix?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
2. Were MS/MSD results for recovery and RPD within advisory limits?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
3. Were Samples used for MS/MSD field blanks?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
4. Were laboratory reported results correctly calculated from raw data?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
5. Were any qualifications required, based on results of MS/MSD samples in conjunction with other QC information?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Comments/Qualifications:			

**DATA VALIDATION WORKSHEETS
VOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAI SDG: 3056 Matrix/No. Samples: S-1

VIII. Laboratory Control Sample (LCS)			
1. Were LCS samples run at correct frequency for each matrix samples?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were LCS calculations performed correctly, and did laboratory reported values match raw data? Were recoveries within laboratory QC limits?	Yes	<input checked="" type="radio"/> No	N/A
4. Were any qualifications required based on LCS data in conjunction with other QC information?	Yes	<input checked="" type="radio"/> No	N/A
Comments/Qualifications: V4 ALAAI LCS / CS 3/13 range. $\frac{85.138}{\text{Xylene-high}}$ (5) TCE $54.38/50 = 108.8$ Chlorb. $53.38/50 = 106.8$ MDE $52.05/50 = 104.1$ equal as "u" for blank control			
IX. Internal Standards			
1. Were standard area counts within a factor of two (-50% to +100%) from associated calibration standard?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were retention times of internal standard within + or - 30 seconds of retention time of associated calibration check?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Were any qualifications required based on internal standard results?	Yes	<input checked="" type="radio"/> No	N/A
Comments/Qualifications: ... SS-018 IS 2 $\frac{268202}{439685} = 61.2\%$ $\frac{15.76}{15.76}$ IS-9 $\frac{251799}{366260} = 68.7\%$ $\frac{17.62}{17.61}$			
X. Target Compound Identification			
1. Are relative retention times (RRT's) within + or - 0.06 RRT units of standard RRT?	Yes	No	<input checked="" type="radio"/> N/A
2. Do sample compound spectra meet specified criteria in relation to laboratory standard spectra?	Yes	No	<input checked="" type="radio"/> N/A
3. Were all compounds accounted for on chromatogram?	Yes	No	<input checked="" type="radio"/> N/A
Comments/Qualifications: None detected - level III			

**DATA VALIDATION WORKSHEETS
VOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: 3056 Matrix/No. Samples: S-1

XI. Compound Quantitation and Reported Contract Required Quantitation Limits (CRQLs)			
1. Were sample results correctly calculated and reported by laboratory?	Yes	No	N/A
2. Were correct internal standard quantitation ion and RRF used to quantify all compounds for all samples?	Yes	No	N/A
3. Were CRQLs adjusted to reflect sample dilutions and dry weight factors not accounted for by the method?	Yes	No	N/A
4. Were any laboratory QA/QC sample results calculated from peaks derived using manual integration?	Yes	No	N/A
5. Were any qualifications required based on this information?	Yes	No	N/A
Comments/Qualifications: <u>No raw data-level the</u>			
XII. Field QC			
1. Were any Field Duplicates associated with this SDG?	Yes	<u>No</u>	N/A
a. Were RPDs acceptable (50% for water samples, 100% for soil samples)?	Yes	No	N/A
2. Were any field blanks or equipment rinsates associated with this SDG?	<u>Yes</u>	No	N/A
a. If yes, were any compounds reported in samples >IDL?	Yes	<u>No</u>	N/A
b. Were any qualifications required based on this information?	Yes	<u>No</u>	N/A
Comments/Qualifications: <u>TB 6814</u> <u>3/14 all u's,</u>			
XIII. Overall Assessment of Data			
1. Are there any specific concerns or limitations regarding the data in this SDG?	Yes	<u>No</u>	N/A
Comments/Qualifications:			

SDG: 0903056 Project: ALAAP --

Method: Semivolatiles - 8270 Matrix/No. Samples: Soil - 1

Validation Samples: AL2403-SS-018

Data Validation Report Summary

	Status Code	Comments
1. Sample Preservation, Handling, and Transport	<u>A</u>	<u></u>
2. Chain of Custody	<u>A</u>	<u></u>
3. Holding Times	<u>A</u>	<u></u>
4. GC/MS Tune/Inst Perf	<u>A</u>	<u></u>
5. Calibrations	<u>X</u>	<u></u>
6. Blanks	<u>A</u>	<u></u>
7. Blank Spike/LCS	<u>X</u>	<u></u>
8. Matrix Spike	<u>NA</u>	<u>see comment, 1</u>
9. Surrogates	<u>X</u>	<u></u>
10. Internal Standards	<u>A</u>	<u></u>
11. Compound Identification	<u>A</u>	<u></u>
12. System Performance	<u>A</u>	<u></u>
13. Field QC Samples	<u>N/A</u>	<u></u>
14. Overall Assessment	<u>X</u>	<u></u>

Status Codes:

A = Acceptable

R = Data Rejected

X = Data acceptable but qualified due to problems

Qualifications:

- 7a. 2-base neutral associated surrogates had low recoveries and the associated compounds were qualified as "US/J".
base neutral.
- 11a. Atrazine & di-n-butylphthalate had low recoveries in the LCS and were qualified as "US".
- 5b. Benzophenone and 2,4-dimethylphenol had had %Ds in the CCAL and the results were qualified as "J" and "US", respectively.

Significant Findings/Recommendations:

- #1 15 of the MS recoveries were below the QC limits and 43 of the MSDS were as well; 5 of the RPDs were above limit - the LCS recoveries were acceptable for all but two of the compounds, that were qualified as "US" - no add'l quals based on MS/MSD recoveries were required.

Overall Data Quality:

Acceptable as qualified.

Validator's Signature:

J. Thomas Kibbles

Date: 4/9/2009

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-018

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-19

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305619

% Moisture: 23 decanted: (Y/N) N Date Sampled: 03/03/09 12:20

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/11/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/15/09 10:07

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	UG/KG Q	Rev
83-32-9-----	Acenaphthene	34	430	110	J J	7a
208-96-8-----	Acenaphthylene	26	430		U UJ	7a
98-86-2-----	Acetophenone	53	430		U UJ	7a
120-12-7-----	Anthracene	36	430	240	J J	7a
1912-24-9-----	Atrazine	37	430		U UJ	7a
100-52-7-----	Benzaldehyde	72	430		U UJ	7a
56-55-3-----	Benzo (a) anthracene	47	430	800	J	7a
205-99-2-----	Benzo (b) fluoranthene	41	430	1200		
207-08-9-----	Benzo (k) fluoranthene	51	430	510		
191-24-2-----	Benzo (g,h,i) perylene	92	430	540		7a, 5b
50-32-8-----	Benzo (a) pyrene	30	430	840		7a
111-91-1-----	bis (2-Chloroethoxy) methane	40	430		U UJ	7a
92-52-4-----	1,1'-Biphenyl	38	430		U	
111-44-4-----	bis (2-Chloroethyl) ether	53	430		U	
108-60-1-----	bis (2-Chloroisopropyl) ether	67	430		U	
117-81-7-----	Bis (2-ethylhexyl) phthalate	47	430	330	J J	7a
101-55-3-----	4-Bromophenyl-phenylether	34	430		U UJ	
85-68-7-----	Butylbenzylphthalate	39	430		U	
105-60-2-----	Caprolactam	88	430		U	
86-74-8-----	Carbazole	47	430	200	J J	
106-47-8-----	4-Chloroaniline	62	430		U UJ	
59-50-7-----	4-Chloro-3-methylphenol	36	430		U U	
91-58-7-----	2-Chloronaphthalene	42	430		U UJ	7a
95-57-8-----	2-Chlorophenol	53	430		U U	
7005-72-3-----	4-Chlorophenyl-phenylether	40	430		U UJ	7a
218-01-9-----	Chrysene	40	430	860	J	7a
53-70-3-----	Dibenz (a,h) anthracene	78	430	170	J	
132-64-9-----	Dibenzofuran	32	430	77	J	
91-94-1-----	3,3'-Dichlorobenzidine	41	430		U UJ	7a
120-83-2-----	2,4-Dichlorophenol	24	430		U U	
84-66-2-----	Diethylphthalate	44	430		U UJ	7a
105-67-9-----	2,4-Dimethylphenol	28	1700		U UJ	5b
131-11-3-----	Dimethylphthalate	40	430		U UJ	7a

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-018

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-19

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 0305619

% Moisture: 23 decanted: (Y/N) N Date Sampled: 03/03/09 12:20

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/11/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/15/09 10:07

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL CONC	UG/KG Q	REV Qnd
84-74-2-----	Di-n-butylphthalate	40	430	U	uJ 7a
534-52-1-----	4,6-Dinitro-2-methylphenol	28	1700	U	u
51-28-5-----	2,4-Dinitrophenol	170	4300	U	u
121-14-2-----	2,4-Dinitrotoluene	31	430	U	uJ 7a
606-20-2-----	2,6-Dinitrotoluene	49	430	U	u
117-84-0-----	Di-n-octylphthalate	35	430	U	u
206-44-0-----	Fluoranthene	70	430	2000	J
86-73-7-----	Fluorene	34	430	96	J
118-74-1-----	Hexachlorobenzene	45	430	U	uJ
87-68-3-----	Hexachlorobutadiene	43	430	U	u
77-47-4-----	Hexachlorocyclopentadiene	80	430	U	u
67-72-1-----	Hexachloroethane	51	430	U	u
193-39-5-----	Indeno (1,2,3-cd) pyrene	60	430	640	J
78-59-1-----	Isophorone	37	430	U	uJ
91-57-6-----	2-Methylnaphthalene	45	430	U	uJ
91-20-3-----	Naphthalene	42	430	78	J
106-44-5-----	4-Methylphenol	34	430	U	uJ
95-48-7-----	2-Methylphenol	50	430	U	u
88-74-4-----	2-Nitroaniline	42	1700	U	u
99-09-2-----	3-Nitroaniline	62	1700	U	u
100-01-6-----	4-Nitroaniline	130	1700	U	u
98-95-3-----	Nitrobenzene	45	430	U	u
88-75-5-----	2-Nitrophenol	29	430	U	u
100-02-7-----	4-Nitrophenol	100	1700	U	u
86-30-6-----	N-Nitrosodiphenylamine (1)	42	430	U	uJ 7a
621-64-7-----	N-Nitroso-di-n-propylamine	72	430	U	uJ 7a
87-86-5-----	Pentachlorophenol	44	1700	U	u
85-01-8-----	Phenanthrene	30	430	1200	J 7a
108-95-2-----	Phenol	47	430	U	u
129-00-0-----	Pyrene	52	430	1600	J 7a
95-95-4-----	2,4,5-Trichlorophenol	35	430	U	uJ 7a
88-06-2-----	2,4,6-Trichlorophenol	45	430	U	u

(1) - Cannot be separated from Diphenylamine

FORM I SV

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALPAP SDG: 3056 Matrix/No. Samples: S-1

I. Technical Holding Times			
A. Sample Preservation, Handling and Transport			
1. Have all samples been preserved correctly?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Have sample temperatures been kept at 4° C (+ or - 2°)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Were all samples received in proper condition?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
4. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
Coolers @ <u>2.1° C.</u>			
B. Chain of Custody			
1. Were all samples properly recorded on COCs?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were correct analyses performed on samples?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
C. Holding Times			
1. Were samples extracted and analyzed within acceptable holding times?	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
2. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
SAMPLED <u>3/4</u>	PREPPED <u>3/11</u>	ANALYZED <u>3/15</u>	
II. GC/MS Instrument Performance Check			
1. Were instrument performance check samples run for each analysis period?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were ion abundance criteria met for DTFPP analysis?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Do laboratory forms match raw data?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
4. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
Comments/Qualifications: <div style="display: flex; justify-content: space-between; align-items: flex-start; padding-top: 20px;"> <div style="width: 45%;"> <u>3/2@14:26</u> <u>198 bar</u> <u>all criteria met</u> </div> <div style="width: 45%; text-align: center;"> <u>3/15 @ 4:37</u> </div> </div>			

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9
Project: ALAAP SDG: ...3556 Matrix/No. Samples: S-1

III. Initial Calibration			
1. Were correct concentrations of standards used for initial calibration? Were samples analyzed within 12 hours of associated instrument performance check?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were initial calibration RRFs for all volatile target compounds and system monitoring compounds > or = 0.05? Do recalculations for RRFs agree with reported values?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Were %RSDs < or = 30% for all volatile target compounds? Do recalculations for RSDs agree with reported values?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
4. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
<p>Comments/Qualifications:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>RRF 70.0 RSDs < 15% R² 70.99</p> </div> <div style="width: 30%;"> <p>Fluorene</p> <p>1.274 1.222 1.346 1.284 1.256 1.266 1.240 1.177 1.216 1.204</p> <p>= 1.249</p> <p>12.485</p> </div> <div style="width: 30%;"> <p>0.0063 73 941 123 5 29 518 109 203</p> <p>= 0.0152 = 1.22</p> <p>1.249</p> </div> </div>			
IV. Continuing Calibration			
1. Were continuing calibration samples run at the required frequency, and compared to the correct initial calibration?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Did calculations from raw data agree with laboratory reported values for RRF and %D?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
3. Were continuing calibration RRFs for volatile organic compounds and system monitoring compounds (surrogates) > or = 0.05?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
4. Were %D between initial calibration RRF and the continuing calibration RRFs within + or - 25%?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
5. Were any qualifications required based on this information?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
<p>Comments/Qualifications:</p> <p>CCAL @ 3/15 @ 4:59</p> <p>Benz³-ghi @ 27.2</p> <p>2,4-dmp @ 29.7</p> <p>poor resp. cpls < 50% → "-45/5"</p>			

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: 11.3056 Matrix/No. Samples: S-1

V. Blanks			
1. Were any target or non-target compounds reported in laboratory prep or calibration blanks?	Yes	<u>No</u>	N/A
2. Were method blank analyses performed at required frequency, and for each GC/MS system used to analyze samples for each type of analysis (i.e., matrix)?	<u>Yes</u>	No	N/A
3. Were any qualifications required based on this information?	Yes	<u>No</u>	N/A
Comments/Qualifications: <p align="center">311 BBS2 3/15 all v's.</p>			
VI. System Monitoring Compounds (Surrogate Spikes)			
1. Were laboratory surrogate recoveries calculated and reported correctly?	<u>Yes</u>	No	N/A
2. Were surrogate recoveries within acceptable limits?	Yes	<u>No</u>	N/A
3. Were any qualifications required based on surrogate spike QC information?	<u>Yes</u>	No	N/A
Comments/Qualifications: <p>35 39 44 50 <u>46</u> <u>54</u> 2-bn's surrogates outside - base neutrals good. as "45/5" 105</p>			
VII. Matrix Spikes/Matrix Spike Duplicates			
1. Were MS/MSD samples analyzed at required frequency for each sample matrix?	<u>Yes</u>	No	N/A
2. Were MS/MSD results for recovery and RPD within advisory limits?	<u>Yes</u>	No	N/A
3. Were Samples used for MS/MSD field blanks?	Yes	<u>No</u>	N/A
4. Were laboratory reported results correctly calculated from raw data?	Yes	No	<u>N/A</u>
5. Were any qualifications required, based on results of MS/MSD samples in conjunction with other QC information?	Yes	<u>No</u>	N/A
Comments/Qualifications: <p>MS - 4,6-dn-2-m.p. } 0 2,4-dnp. } 0 Hexachlorocyclo @ 6 MS = 0-70 MSD = 0-58 RPD's: 12-53</p>			

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: 113056 Matrix/No. Samples: S-1

VIII. Laboratory Control Sample (LCS)			
1. Were LCS samples run at correct frequency for each matrix samples?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were LCS calculations performed correctly, and did laboratory reported values match raw data? Were recoveries within laboratory QC limits?	Yes	<input checked="" type="radio"/> No	N/A
4. Were any qualifications required based on LCS data in conjunction with other QC information?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
Comments/Qualifications: 03116B52 25 -81 Chrysene 2205 / 3333 = 66.2% Atraz. di-n-butyl Low (u) Fluoranthene 2143 / 3333 = 64.3%			
IX. Internal Standards			
1. Were standard area counts within a factor of two (-50% to +100%) from associated calibration standard?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were retention times of internal standard within + or - 30 seconds of retention time of associated calibration check?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Were any qualifications required based on internal standard results?	Yes	<input checked="" type="radio"/> No	N/A
Comments/Qualifications: IS 2 $\frac{3600943}{3973096} = 90.6\%$ $\frac{6.75}{6.75}$ IS 5 $\frac{2322921}{2830327} = 82.1\%$ $\frac{21.45}{21.47}$ IS 6 $\frac{1334912}{2168611} = 61.6\%$ $\frac{25.47}{25.48}$			
X. Target Compound Identification			
1. Are relative retention times (RRT's) within + or - 0.06 RRT units of standard RRT?	Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
2. Do sample compound spectra meet specified criteria in relation to laboratory standard spectra?	Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
3. Were all compounds accounted for on chromatogram?	Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Comments/Qualifications: No raw data level III			

**DATA VALIDATION WORKSHEETS
SEMIVOLATILE ORGANICS**

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: 3056 Matrix/No. Samples: 5-1

XI. Compound Quantitation and Reported Contract Required Quantitation Limits (CRQLs)			
1. Were sample results correctly calculated and reported by laboratory?	Yes	No	N/A
2. Were correct internal standard quantitation ion and RRF used to quantify all compounds for all samples?	Yes	No	N/A
3. Were CRQLs adjusted to reflect sample dilutions and dry weight factors not accounted for by the method?	Yes	No	N/A
4. Were any laboratory QA/QC sample results calculated from peaks derived using manual integration?	Yes	No	N/A
5. Were any qualifications required based on this information?	Yes	No	N/A
Comments/Qualifications: <p align="center"><i>No raw data level III</i></p>			
XII. Field QC			
1. Were any Field Duplicates associated with this SDG?	Yes	No	N/A
a. If Yes, were RPDs acceptable (50% for water samples, 100% for soil samples)?	Yes	No	N/A
2. Were any field blanks or equipment rinsates associated with this SDG?	Yes	No	N/A
a. If yes, were any compounds reported in samples >IDL?	Yes	No	N/A
b. Were any qualifications required based on this information?	Yes	No	N/A
Comments/Qualifications:			
XIII. Overall Assessment of Data			
1. Are there any specific concerns or limitations regarding the data in this SDG?	Yes	No	N/A
Comments/Qualifications:			

SDG: 0903056 Project: ALAAP

Method: Pesticides/PCB 8081 A Matrix/No. of Samples: Soil - 1

Validation Samples: AL2403-SS-018

Data Validation Report Summary

	Status Code	Comments
1. Sample Preservation, Handling, and Transport	<u>A</u>	<u></u>
2. Chain of Custody	<u>A</u>	<u></u>
3. Holding Times	<u>A</u>	<u></u>
4. GC/MS Tune/Inst Perf	<u>A</u>	<u></u>
5. Calibrations	<u>A</u>	<u></u>
6. Blanks	<u>A</u>	<u></u>
7. Blank Spike/LCS	<u>A</u>	<u></u>
8. Matrix Spike	<u>N/A</u>	<u></u>
9. Surrogates	<u>A</u>	<u></u>
10. Internal Standards	<u>N/A</u>	<u></u>
11. Compound Identification	<u>X</u>	<u></u>
12. System Performance	<u>A</u>	<u></u>
13. Field QC Samples	<u>N/A</u>	<u></u>
14. Overall Assessment	<u>X</u>	<u></u>

Status Codes:

A = Acceptable

R = Data Rejected

X = Data acceptable but qualified due to problems

Qualifications:

18. The percent difference between results from the primary column and the confirmatory column exceeded 25% for the following and the reported result was qualified as "5".

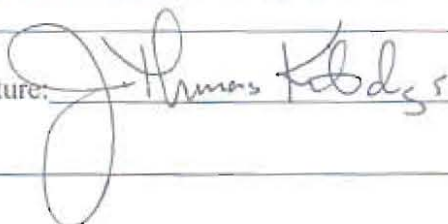
α-chlordane	Dieldrin
β-BHC	Endrin.
DDD	heptachlor epoxide.

Significant Findings/Recommendations:

Overall Data Quality:

Acceptable as qualified.

Validator's Signature:



Date:

4/9/2009

Peer Reviewer:

Date:

FORM 1
PESTA ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-018

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: EL Case No.: SAS No.: NA SDG No.: SES.P03056

Matrix: (soil/water) SOIL Lab Sample ID: 0903056-19

Sample wt/vol: 15.0 (g/mL) G Lab File ID: 080F7801

% Moisture: 23 decanted: (Y/N) N Date Sampled: 03/03/09 12:20

Extraction: (SepF/Cont/Sonc/Soxh) SOXH Date Extracted: 03/06/09

Concentrated Extract Volume: 5.0 (mL) Date Analyzed: 03/12/09 09:40

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: MDL	(ug/L or ug/Kg) RL	UG/KG CONC	Q	Rev 2nd
309-00-2-----	Aldrin	0.14	0.43		U	u
319-84-6-----	Alpha-BHC	0.14	0.43	0.24	J	J
5103-71-9-----	Alpha-Chlordane	0.14	0.43	1.4	J	J
319-85-7-----	Beta-BHC	0.14	0.43	0.38	J	J
72-54-8-----	4,4'-DDD	0.22	0.87	8.1	J	J
72-55-9-----	4,4'-DDE	0.22	0.87	36		
50-29-3-----	4,4'-DDT	0.22	0.87	7.1		
319-86-8-----	Delta-BHC	0.14	0.43		U	u
60-57-1-----	Dieldrin	0.22	0.87	0.80	JPM	J
959-98-8-----	Endosulfan I	0.14	0.43		U	u
33213-65-9----	Endosulfan II	0.22	0.87		U	u
1031-07-8----	Endosulfan Sulfate	0.22	0.87		U	u
72-20-8-----	Endrin	0.22	0.87	2.0	J	J
7421-93-4-----	Endrin Aldehyde	0.22	0.87		U	u
53494-70-5----	Endrin Ketone	0.22	0.87		U	u
58-89-9-----	Gamma-BHC	0.14	0.43	0.31	J	J
5103-74-2----	Gamma-Chlordane	0.14	0.43	1.9		
76-44-8-----	Heptachlor	0.14	0.43		U	u
1024-57-3----	Heptachlor Epoxide	0.14	0.43	0.41	JPM	J
72-43-5-----	Methoxychlor	0.14	0.43		U	u
8001-35-2----	Toxaphene	14	43		U	u

FORM I PESTA

DATA VALIDATION WORKSHEET
PESTICIDE/PCBs

Reviewer: Kitchings

Date: 4/9

Project: ALAAP

SDG: 3056

Matrix/No. Samples: S-1

I. Technical Holding Times

A. Sample Preservation, Handling and Transport

1. Have sample temperatures been kept at 4 °C (+or- 2 °C)?

Yes

No

N/A

2. Were all samples received in proper condition?

Yes

No

N/A

3. Were any qualifications required based on this information?

Yes

No

N/A

Cooler @ 2.1°C

B. Chain of Custody

1. Were all samples properly recorded on COCs?

Yes

No

N/A

2. Were correct analyses performed on samples?

Yes

No

N/A

C. Holding Times

1. Were samples extracted within 7 days of collection (technical holding time)?

Yes

No

N/A

2. Were samples analyzed within 40 days of extraction (technical holding time)?

Yes

No

N/A

3. Were any qualifications required based on this information?

Yes

No

N/A

Comments/Qualifications:

3/4

3/6

3/12

II. GC/ECD Instrument Performance Check

1. Were the RCM and PEM analyzed at the appropriate position in the initial calibration sequences?

Yes

No

N/A

2. Were peak resolutions accepted for both the RCM and PCM?

Yes

No

N/A

3. Were RTs within acceptable window limits (+or- 0.05)?

Yes

No

N/A

4. Are the RPDs <or=25% for the PEM analysis?

Yes

No

N/A

5. Are 4,4'-DDT and Endrin percent breakdowns within acceptable limits?

Yes

No

N/A

Comments/Qualifications:

→ DDT
MR1 3.7
MR2 3.7

Endrin
12.9
9.3

DATA VALIDATION WORKSHEET
PESTICIDE/PCBs

Reviewer: Kitchings

Date: 4/9

Project: ALAAP

SDG: 1..3056

Matrix/No. Samples: S-1

III. Initial Calibration			
1. Were the individual standard A and B mixtures analyzed at the proper frequencies and concentrations?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Are peak resolution and retention times within the acceptable limits?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Were %RSDs for the calibration factors for the single component pesticides and surrogates within control limits?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
4. Were the multi component compounds analyzed at the required frequencies, and were the required 3 peaks present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
<p>Comments/Qualifications:</p> <p>MR-2 \checkmark 3/3 \checkmark RSD \checkmark $\leq 15\%$ \checkmark $R^2 > 0.99$</p> <p>Endrin 19664 mk-1 16728 16656 16268 15310 15413 18707 / 118746 = 16964</p> <p>RTs \checkmark Tox Chloride \checkmark</p>			
IV. Continuing Calibration			
1. Were all blanks, PEMs and standards analyzed at the proper frequency?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
2. Were peak resolutions for A and B mixtures $\geq 90\%$	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
3. Were RTs within retention time windows established in the initial calibration?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
4. Are the RPDs less than 25%?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
<p>Comments/Qualifications:</p> <p>3/12 @ 8:21 D $\leq 15\%$ DDD $115-100/100 = 15\%$</p> <p>3/12 @ 11:57 DDT $\leq 18\%$ Aldrin $\frac{26734-24767}{24767} = 7.9\%$</p>			
V. Blanks			
1. Were any analytes reported in method blank analyses above the CRQL?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
2. Were method blanks analyses performed for each matrix, concentration level, GC system, and extraction batch?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	N/A
3. Were any qualifications required based on this information?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	N/A
<p>Comments/Qualifications:</p> <p>BLK 036 3/12 @ 4:03 all u's.</p>			

DATA VALIDATION WORKSHEET
PESTICIDE/PCBs

Reviewer: Kitchings Date: 4/9

Project: ALAAP SDG: ... 3056 Matrix/No. Samples: S-1

VI. Surrogate Spikes			
1. Were the surrogate spikes analyzed?	<u>Yes</u>	No	N/A
2. Were surrogate recoveries within the 60-150% limit?	<u>Yes</u>	No	N/A
3. Were the RTs for the surrogates within the limits established from the initial calibration (+or- 0.05 for TCX, and +or- 0.10 for DCB)?	<u>Yes</u>	No	N/A
Comments/Qualifications: <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> $\begin{matrix} \text{S1} \\ 73 \end{matrix} \quad \begin{matrix} 72 \end{matrix}$ </div> <div style="text-align: center;"> $\begin{matrix} \text{S2} \\ 122 \end{matrix} \quad \begin{matrix} 108 \end{matrix}$ </div> </div>			
VII. Matrix Spike/Matrix Spike Duplicates			
1. Were samples used for matrix spike sample analysis identified as field blanks?	Yes	No	N/A
2. Were matrix spike recoveries and RPDs within established advisory limits?	Yes	No	N/A
3. Did laboratory values reported on forms match raw data?	Yes	No	N/A
4. Were any qualifications required based on this information?	Yes	No	N/A
Comments/Qualifications:			
VIII. Laboratory Control Samples (not included in Region III Modifications)			
1. Were LCS samples run at correct frequency for each matrix samples?	<u>Yes</u>	No	N/A
2. Were LCS recoveries within the acceptable QC limits?	<u>Yes</u>	No	N/A
3. Were LCS calculations performed correctly, and did laboratory reported values match raw data?	Yes	No	N/A
4. Were any qualifications required based on LCS data in conjunction with other QC information?	Yes	<u>No</u>	N/A
Comments/Qualifications: <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;"> $\begin{matrix} \dots 3056 \\ 87-108 \end{matrix}$ </div> <div style="text-align: center;"> $\beta - \text{BHC} \quad 30.30 / 33.33 = 90.9\%$ $\gamma - \text{BHC} \quad 32.25 / 33.33 = 96.8\%$ </div> </div>			

DATA VALIDATION WORKSHEET
PESTICIDE/PCBs

Reviewer: Kitchings

Date: 4/9

Project: ALAP

SDG: ...3056

Matrix/No. Samples: S-1

IX. Target Compound Identification/Quantitation

1. Are RTs within the retention time windows for both columns?	Yes	No	N/A
2. Do reported detected analytes compare with the chromatograms?	Yes	No	N/A
3. For multi-component target compounds, were the RTs and peak heights compared against standard chromatograms?	Yes	No	N/A
4. Was GC/MS verification made for sample extracts exceeding 10ng/l? <i>P/S Column results > 25% Yes</i>	Yes	No	N/A
5. Were compound qualities and CRQL values checked and/or recalculated?	Yes	No	N/A
6. Were any laboratory QA/QC sample results calculated from peaks derived using manual integration?	Yes	No	N/A
7. Were any qualifications required based on this information?	Yes	No	N/A

Comments/Qualifications:

No raw data level III

see 2nd page for cpds.

X. Field QC

1. Were any Field Duplicates associated with this SDG?	Yes	No	N/A
a. If Yes, were RPDs acceptable (50% for water samples, 100% for soil samples)?	Yes	No	N/A
2. Were any field blanks or equipment rinsates associated with this SDG?	Yes	No	N/A
a. If yes, were any compounds reported in samples >IDL?	Yes	No	N/A
b. Were any qualifications required based on this information?	Yes	No	N/A

Comments/Qualifications:

XI. Overall Assessment of Data

1. Are there any specific concerns or limitations regarding the data in this SDG?	Yes	No	N/A
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Comments/Qualifications:

SDG: 0903056 Project: ALAP

Method: METALS Matrix/No. of Samples: Soil - 1

Validation Samples: AL2403-SS-018

Data Validation Report Summary

	Status Code	Comments
1. Sample Preservation, Handling, and Transport	<u>A</u>	
2. Chain of Custody	<u>A</u>	
3. Holding Times	<u>A</u>	
4. Calibrations	<u>X</u>	
5. Blanks	<u>A</u>	
6. ICP/ICS	<u>A</u>	
7. Blank Spike/LCS	<u>A</u>	
8. Duplicates	<u>N/A</u>	
9. Matrix Spike	<u>N/A</u>	
10. Furnace Atomic Absorption QC	<u>N/A</u>	
11. ICP Serial Dilution	<u>N/A</u>	
12. Sample Result Verification	<u>A</u>	
13. Field QC Samples	<u>N/A</u>	
14. Overall Assessment	<u>X</u>	

Status Codes:

A = Acceptable

R = Data Rejected

X = Data acceptable but qualified due to problems

Qualifications:

- 5b • The recovery for Cr in the CCV2 and CCV3 was below 90% and the result was qualified as "J-" or estimated biased low

Significant Findings/Recommendations:

Overall Data Quality:

Acceptable as qualified,

Date: 4/9/2009

Validator's Signature:

Thomas Kubicki

USEPA - CLP

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

AL2403-SS-018

Lab Name: Empirical LaboratoriesContract: SES, LLCLab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 0903056Matrix (soil/water): SOLIDLab Sample ID: 0903056-19Level (low/med): LOWDate Received: 03/05/09% Solids: 76.7Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15000			P
7440-36-0	Antimony	4.5			P
7440-38-2	Arsenic	14.6			P
7440-39-3	Barium	307			P
7440-41-7	Beryllium	1.2	B		P
7440-43-9	Cadmium	3.8			P
7440-70-2	Calcium	55800			P
7440-47-3	Chromium	21.8			P
7440-48-4	Cobalt	5.5			P
7440-50-8	Copper	216			P
7439-89-6	Iron	23300			P
7439-92-1	Lead	318			P
7439-95-4	Magnesium	8490			P
7439-96-5	Manganese	754			P
7439-97-6	Mercury	0.021	B		AV
7440-02-0	Nickel	15.2			P
7440-09-7	Potassium	1530			P
7782-49-2	Selenium	1.6			P
7440-22-4	Silver	0.25	U		P
7440-23-5	Sodium	262	B		P
7440-28-0	Thallium	0.75	U		P
7440-62-2	Vanadium	24.4			P
7440-66-6	Zinc	1030			P

Raw Anal

J

J- 5b

J

U

J

U

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

**DATA VALIDATION WORKSHEET
METALS**

Reviewer: Kitchings

Date: 4/9

Project: ALAAP

SDG: 3056

Matrix/No. Samples: S-1

I. Sample Management			
A. Sample Preservation, Handling and Transport			
1. Have all samples been preserved with HNO ₃ to pH <2?	Yes	No	<u>N/A</u>
2. Have sample temperatures been kept at 4° C (+ or - 2 ° C)?	<u>Yes</u>	No	N/A
3. Were all samples received in proper condition?	<u>Yes</u>	No	N/A
4. Were any qualifications required based on this information?	Yes	<u>No</u>	N/A
Cooler @ <u>2.1° C.</u>			
B. Chain of Custody			
1. Were all samples properly recorded on COCs?	<u>Yes</u>	No	N/A
2. Were correct analyses performed on samples?	<u>Yes</u>	No	N/A
C. Holding Times			
1. Were samples analyzed within acceptable holding times?	<u>Yes</u>	No	N/A
2. Were any qualifications required based on this information?	Yes	<u>No</u>	N/A
SAMPLED		PREPPED/ANALYZED	
<u>3/4</u>		<u>3/17</u>	
		<u>3/31</u>	
II. Calibrations			
1. Were proper number of calibration standards used for each analytical instrument used?	<u>Yes</u>	No	N/A
2. Is the calibration R ² >or = 0.995 for each analytical instrument used?	Yes	No	<u>N/A</u>
3. Are initial and continuing calibration verification %R within 10% (+ or - 1%) acceptance window?	Yes	<u>No</u>	N/A
4. Are CRDL Standard %R within 10% (+ or - 1%) acceptance window?	<u>Yes</u>	No	N/A
5. Were any qualifications required based on this information?	<u>Yes</u>	No	N/A
Comments/Qualifications: <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>KV</p> <p>ICP 929- 106.7</p> <p>Hg 100.0 ICV</p> </div> <div style="text-align: center;"> <p>CCV2</p> <p>86.8-86.8 108.9</p> <p>1030 CCV1</p> </div> <div style="text-align: center;"> <p>CCV3</p> <p>88.3-Cr -108.6</p> <p>CRDL ✓ 5012</p> </div> <div style="text-align: left; margin-top: 20px;"> <p>← Cr - J - biased low.</p> </div> </div>			

**DATA VALIDATION WORKSHEET
METALS**

Reviewer: Kitchings

Date: 4/9

Project: ALAAP

SDG: ...3056

Matrix/No. Samples: S-1

III. Blanks

- | | | | |
|---|-----|-----------|-----|
| 1. Are any analytes reported in laboratory prep or calibration blanks above the IDL? | Yes | <u>No</u> | N/A |
| 2. Are any analytes reported as negative values in laboratory prep or calibration blanks? | Yes | <u>No</u> | N/A |
| 3. Were any qualifications required based on this information? | Yes | <u>No</u> | N/A |

Comments/Qualifications:

ICB CCB2 CCB3 ^{Prg.} 31709B MB
u's u's u's u's.

Hg u CCB1 - u
ICB.

IV. ICP Interference Check Sample (ICS)

- | | | | |
|---|------------|-----------|-----|
| 1. Were ICS samples run at the beginning and end of each sample analysis run? | <u>Yes</u> | No | N/A |
| 2. Are ICS %R within 80-120% acceptable control limits? | <u>Yes</u> | No | N/A |
| 3. Were any qualifications required based on this information? | Yes | <u>No</u> | N/A |

Comments/Qualifications:

ICS - AB - $\rightarrow 80.2 - 117.7$ Ba $588.3/500 = 117.7$
Se $55.2/50 = 110.4$

V. Blank Spike/Laboratory Control Sample (LCS)

- | | | | |
|---|------------|-----------|------------|
| 1. Are all aqueous LCS %R within 80-120% control limits? | <u>Yes</u> | No | <u>N/A</u> |
| 2. Are all solid LCS %R within control limits established by EPA? | <u>Yes</u> | No | N/A |
| 3. Were any qualifications required based on this information? | Yes | <u>No</u> | N/A |

Comments/Qualifications:

LCSS031109B Hg 880 - 110.6 Sb $452/50 = 90.4$
Hg .4592
- .0214 $\rightarrow 0.42$
18S = 104.2
18SP $\rightarrow .4753$
- .0214 / .42 = 118.26
Cu $47.7/50 = 95.4$
Ag $44.9/50 = 89.8$

**DATA VALIDATION WORKSHEET
METALS**

Reviewer: Kitchings

Date: 4/9

Project: ALAA P

SDG: ... 305b

Matrix/No. Samples: S-1

VI. Duplicates

1. Were samples used for duplicate sample analysis identified as field blanks?

Yes

No

N/A

2. For duplicate samples >5x CRDL, were RPDs within control limits of + or - 20% for water, or + or - 35% for soil?

Yes

No

N/A

3. For duplicate samples <5x CRDL, were duplicate samples within control limit of + or - CRDL for water, or + or - 2xCRDL for soil?

Yes

No

N/A

4. Were any qualifications required based on this information?

Yes

No

N/A

Comments/Qualifications:

None

H

VII. Matrix Spike

1. Were samples used for matrix spike sample analysis identified as field blanks?

Yes

No

N/A

2. Were spike recoveries within 75-125% limits (limits do not apply when original sample concentration exceeds spike concentration by a factor of 4)?

Yes

No

N/A

3. Were any qualifications required based on this information?

Yes

No

N/A

Comments/Qualifications:

Hg from page
(2)

VIII. ICP Serial Dilution

1. Were %Ds for ICP serial dilution samples within 10% for analytes with concentrations greater than 50x IDL?

Yes

No

N/A

2. Were any qualifications required based on this information?

Yes

No

N/A

Comments/Qualifications:

None.

**DATA VALIDATION WORKSHEET
METALS**

Reviewer: Kitchings

Date: 4/9

Project: ALAAP

SDG: 3056

Matrix/No. Samples: S-1

IX. Sample Result Qualification Not Required For Level III Data Validation			
1. Were sample results reported by laboratory supported by raw data?	Yes	No	N/A
2. Were correct calculations used to determine sample results?	Yes	No	N/A
3. Were any qualifications required based on this information?	Yes	No	N/A
Comments/Qualifications: <p align="center">No raw data - level III</p>			
X. Field QC			
1. Were any Field Duplicates associated with this SDG?	Yes	No	N/A
a. Were RPDs acceptable (50% for water samples, 100% for soil samples)?	Yes	No	N/A
2. Were any field blanks or equipment rinsates associated with this SDG?	Yes	No	N/A
a. If yes, were any analytes reported in samples >IDL?	Yes	No	N/A
b. Were any qualifications required based on this information?	Yes	No	N/A
Comments/Qualifications:			
XI. Overall Assessment of Data			
1. Are there any specific concerns or limitations regarding the data in this SDG?	Yes	No	N/A
Comments/Qualifications:			

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Send Results to:		Send Invoice to:		Analysis Requirements:										Lab Use Only:			
Name <u>DOUG HAWN</u>		Name <u>SAME</u>		8270 LOW LEVEL	TCLP VOC	TCLP SVOC	TCLP PEST/HERB	TCLP METALS	REACTIVE SULFIDE, CHLORIDE, AMMONIA, MERCURY, CADMIUM, CHROMIUM, COBALT, COPPER, LEAD, NICKEL, SILVER, ZINC	SVOC	PEST	TOTAL METALS	VOC	VOA Headspace Y <u>Y</u> N <u>NA</u>			
Company <u>SES LLC</u>		Company _____												Field Filtered Y <u>Y</u> N <u>NA</u>			
Address <u>1006 FLOYD CULLER</u>		Address _____												Correct Containers Y <u>Y</u> N <u>NA</u>			
City <u>OAK RIDGE</u>		City _____												Discrepancies Y <u>Y</u> N <u>NA</u>			
State, Zip <u>TN 37830</u>		State, Zip _____												Cust. Seals Intact Y <u>Y</u> N <u>NA</u>			
Phone <u>865-481-7837</u>		Phone _____		Containers Intact Y <u>Y</u> N <u>NA</u>			Airbill #: <u>FX 9002</u>										
Fax <u>865-481-7837</u>		Fax _____		CAR #: _____													
E-mail _____		E-mail _____															
Project No./Name: <u>ALAAP E01590002</u>				Sampler's (Signature): <u>[Signature]</u>													
Lab Use Only Lab #	Date/Time Sampled	Sample Description	Sample Matrix											Comments	No. of Bottles	Lab Use Only Containers/Pres.	
<u>0903056</u>	<u>-13</u> <u>3/3/09</u> <u>16:40</u>	<u>AL2403-SS-013</u>	<u>SOIL</u>	<u>X</u>											<u>3/3/09</u>	<u>1</u>	<u>1m</u>
	<u>-14</u> <u>3/4/09</u> <u>11:20</u>	<u>AL2403-SS-014</u>		<u>X</u>										<u>+ms/msD</u>	<u>2</u>	<u>2m</u>	
	<u>-15</u> <u>11:35</u>	<u>AL2403-SS-015</u>		<u>X</u>										<u>3/4/09</u>		<u>1m</u>	
	<u>-16</u> <u>11:35</u>	<u>AL2403-SS-015</u>		<u>X</u>													
	<u>-17</u> <u>11:40</u>	<u>AL2403-SS-016</u>		<u>X</u>													
	<u>-18</u> <u>12:00</u>	<u>AL2403-SS-017</u>		<u>X</u>													
	<u>-19</u> <u>12:26</u>	<u>AL2403-SS-018</u>								<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		<u>4</u>	<u>4m</u>	
	<u>-20</u> <u>12:26</u>	<u>AL2403-SS-019</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>						<u>4</u>	<u>↓</u>	
	<u>-21</u> <u>12:20</u>	<u>6814 (TRIP BLANK) WATER</u>										<u>X</u>			<u>2</u>	<u>25-HY</u>	
Sample Kit Prep'd by: (Signature) _____				Date/Time _____		Received By: (Signature) _____		REMARKS: <u>SOIL VOC SAMPLE COLLECTED IN</u> <u>40Z GLASS JAR, PER</u> <u>DOUG HAWN (SES)</u>							Details: Page <u>2</u> of <u>2</u> Cooler No. <u>1</u> of <u>1</u> Date Shipped <u>3/4/09</u> Shipped By <u>JE (for ex)</u> Turnaround _____		
Relinquished by: (Signature) <u>[Signature]</u>				Date/Time <u>3/4/09 16:00</u>		Received By: (Signature) _____											
Relinquished by: (Signature) _____				Date/Time _____		Received By: (Signature) _____											
Received for Laboratory by: (Signature) <u>[Signature]</u>				Date/Time <u>3-5-09</u>		Temperature <u>2.1°C</u>											

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers.

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Send Results to:		Send Invoice to:		Analysis Requirements:												Lab Use Only:									
Name <u>DOUG HAWN</u>		Name <u>SAME</u>		Low Level														VOA Headspace Y N <u>NA</u>							
Company <u>SES LLC</u>		Company _____																Field Filtered Y N <u>NA</u>							
Address <u>1006 FLOYD CULLER</u>		Address _____																Correct Containers <u>Y</u> N <u>NA</u>							
City <u>DAK RIDGE, TN</u>		City _____																Discrepancies Y N <u>NA</u>							
State, Zip <u>TN 37830</u>		State, Zip _____																Cust. Seals Intact <u>Y</u> N <u>NA</u>							
Phone <u>865-481-7837</u>		Phone _____															Containers Intact <u>Y</u> N <u>NA</u>								
Fax _____		Fax _____															Airbill #: <u>FX 9002</u>								
E-mail <u>D.HAWN@SESLLC.COM</u>		E-mail _____															CAR #: _____								
Project No./Name: <u>ALAAP C0159.0002</u>				Sampler's (Signature): <u>[Signature]</u>																					
Lab Use Only Lab #		Date/Time Sampled		Sample Description		Sample Matrix														Comments		No. of Bottles		Lab Use Only Containers/Pres.	
<u>0903056 -01</u>		<u>3/3/09 14:45</u>		<u>AL2403-SS-002</u>		<u>Soil</u>		<u>X</u>														<u>1</u>		<u>1M</u>	
<u>-02</u>		<u>14:45</u>		<u>AL2403-SS-002</u>		<u>Soil</u>		<u>X</u>														<u>1</u>			
<u>-03</u>		<u>14:50</u>		<u>AL2403-SS-003</u>				<u>X</u>														<u>1</u>			
<u>-04</u>		<u>14:55</u>		<u>AL2403-SS-004</u>				<u>X</u>														<u>1</u>			
<u>-05</u>		<u>15:20</u>		<u>AL2403-SS-005</u>				<u>X</u>														<u>1</u>			
<u>-06</u>		<u>15:36</u>		<u>AL2403-SS-006</u>				<u>X</u>														<u>1</u>			
<u>-07</u>		<u>15:45</u>		<u>AL2403-SS-007</u>				<u>X</u>														<u>1</u>			
<u>-08</u>		<u>15:55</u>		<u>AL2403-SS-008</u>				<u>X</u>														<u>1</u>			
<u>-09</u>		<u>16:00</u>		<u>AL2403-SS-009</u>				<u>X</u>														<u>1</u>			
<u>-10</u>		<u>16:05</u>		<u>AL2403-SS-010</u>				<u>X</u>														<u>1</u>			
<u>-11</u>		<u>16:20</u>		<u>AL2403-SS-011</u>				<u>X</u>														<u>1</u>			
<u>-12</u>		<u>16:35</u>		<u>AL2403-SS-012</u>				<u>X</u>														<u>1</u>			
Sample Kit Prep'd by: (Signature) _____				Date/Time _____		Received By: (Signature) _____				REMARKS:												Details: Page <u>1</u> of <u>2</u> Cooler No. <u>1</u> of <u>1</u> Date Shipped <u>3/4/09</u> Shipped By <u>JC (FA FX)</u> Turnaround _____			
Relinquished by: (Signature) <u>[Signature]</u>				Date/Time <u>3/4/09 16:00</u>		Received By: (Signature) _____																			
Relinquished by: (Signature) _____				Date/Time _____		Received By: (Signature) _____																			
Received for Laboratory by: (Signature) <u>[Signature]</u>				Date/Time <u>3-5-09 0900</u>		Temperature <u>2.1°C</u>																			

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-019

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.V03056

Matrix: (soil/water) TCLP Lab Sample ID: 0903056-20

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 0305620T

Level: (low/med) LOW Date Sampled: 03/03/09 12:20

% Moisture: not dec. _____ Date Analyzed: 03/17/09 14:57

GC Column: DB-VRX ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
71-43-2-----	Benzene	0.010	0.50	<0.010	U
78-93-3-----	2-Butanone	0.10	200	<0.10	U
56-23-5-----	Carbon tetrachloride	0.010	0.50	<0.010	U
108-90-7-----	Chlorobenzene	0.010	100	<0.010	U
67-66-3-----	Chloroform	0.010	6.0	<0.010	U
106-46-7-----	1,4-Dichlorobenzene	0.010	7.5	<0.010	U
107-06-2-----	1,2-Dichloroethane	0.010	0.50	<0.010	U
75-35-4-----	1,1-Dichloroethene	0.010	0.70	<0.010	U
127-18-4-----	Tetrachloroethene	0.010	0.70	<0.010	U
79-01-6-----	Trichloroethene	0.010	0.50	<0.010	U
75-01-4-----	Vinyl chloride	0.020	0.20	<0.020	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-019

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B03056

Matrix: (soil/water) TCLP Lab Sample ID: 0903056-20

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 0305620T

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 03/03/09 12:20

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 03/18/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 03/21/09 02:45

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
121-14-2-----	2,4-Dinitrotoluene	0.050	0.13	<0.050	U
118-74-1-----	Hexachlorobenzene	0.050	0.13	<0.050	U
87-68-3-----	Hexachlorobutadiene	0.050	0.50	<0.050	U
67-72-1-----	Hexachloroethane	0.050	3.0	<0.050	U
108-39-4-----	3-Methylphenol	0.050	200	<0.050	U
106-44-5-----	4-Methylphenol	0.050	200	<0.050	U
95-48-7-----	2-Methylphenol	0.050	200	<0.050	U
98-95-3-----	Nitrobenzene	0.050	2.0	<0.050	U
87-86-5-----	Pentachlorophenol	0.20	100	<0.20	U
110-86-1-----	Pyridine	0.20	5.0	<0.20	U
95-95-4-----	2,4,5-Trichlorophenol	0.050	400	<0.050	U
88-06-2-----	2,4,6-Trichlorophenol	0.050	2.0	<0.050	U

FORM 1
PESTA ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-019

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: EL Case No.: SAS No.: NA SDG No.: SES.P03056

Matrix: (soil/water) TCLP Lab Sample ID: 0903056-20

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 060F6001

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 03/03/09 12:20

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 03/20/09

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 03/20/09 10:03

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
12789-03-6----	Chlordane	0.00050	0.030	<0.00050	U
72-20-8-----	Endrin	0.00010	0.020	<0.00010	U
58-89-9-----	Gamma-BHC	0.00010	0.40	<0.00010	U
76-44-8-----	Heptachlor	0.00010	0.0080	<0.00010	U
1024-57-3----	Heptachlor Epoxide	0.00010	0.0080	<0.00010	U
72-43-5-----	Methoxychlor	0.00010	10	<0.00010	U
8001-35-2-----	Toxaphene	0.010	0.50	<0.010	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-019

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: Case No.: SAS No.: NA SDG No.: SES.H03056

Matrix: (soil/water) TCLP Lab Sample ID: 0903056-20

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 019R0101

% Moisture: decanted: (Y/N) Date Sampled: 03/03/09 12:20

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 03/20/09

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 03/23/09 23:18

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS:		MG/L	Q
		MDL	(ug/L or ug/Kg) RL CONC		
94-75-7-----2,4-D		0.0025	0.0050		U
93-72-1-----2,4,5-TP (Silvex)		0.00025	0.00050		U



Empirical Laboratories, LLC

CLIENT: SES, Inc.

DATE RECEIVED: 03/05/09

DATE REPORTED: 03/26/09

EMPIRICAL LABORATORIES SAMPLE NUMBER						0903056-20
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE						AL2403-SS-019 03/03/2009 12:20
ANALYTES	REGULATORY LIMITS	MDL	REPORTING LIMITS	USEPA METHOD	UNITS	CONC
Arsenic-TCLP	5.0	0.030	0.10	1311/6010B	mg/L	<0.030
Barium-TCLP	100	0.050	2.0	1311/6010B	mg/L	0.651
Cadmium-TCLP	1.0	0.010	0.050	1311/6010B	mg/L	0.0482 B
Chromium-TCLP	5.0	0.020	0.10	1311/6010B	mg/L	<0.020
Lead-TCLP	5.0	0.015	0.030	1311/6010B	mg/L	0.105
Mercury-TCLP	0.20	0.00080	0.0020	1311/7470A	mg/L	<0.00080
Selenium-TCLP	1.0	0.030	0.050	1311/6010B	mg/L	<0.030
Silver-TCLP	5.0	0.010	0.10	1311/6010B	mg/L	<0.010
Initial pH - TCLP	NA	NA	NA	1311	Units	8.1
Final pH - TCLP	NA	NA	NA	1311	Units	6.1
Cyanide	250	0.12	0.25	9012A	mg/kg (as Rec'd)	0.67
Ignitability	<140	NA	NA	1010	°F	>158
pH- Laboratory (1)	<2/>12.5	NA	NA	9045B	Units	8.3 @ 25°C
Reactive Sulfide	500	19	57	Chap.7.3.4.2	mg/kg (as Rec'd)	<19

See attached page for definitions of terms and qualifiers.

EMPIRICAL LABORATORIES

D. Rick Davis
Vice President



Empirical Laboratories, LLC

ANALYTICAL REPORT NOTES, TERMS AND QUALIFIERS (INORGANIC)

Notes:

The metals and cyanide reporting limits (RLs) have been statistically determined to be no less than three standard deviations as defined in 40 CFR 136, Appendix B, Revision 1.11. All other reporting limits are referenced from the specific analytical method.

Terms:

NA Not Applicable

NR Not Requested

Qualifiers:

B The reported value is less than the practical quantitation limit (PQL, project defined) but greater than or equal to the MDL.

E The reported value is estimated due to the presence of matrix interference.

N Predigested spike recovery not within control limits.

* RPD or absolute difference for Duplicate analysis not within control limits.

** Reference Standard Methods 19th edition.

(1) pH analyzed outside USEPA specified holding time. pH must be measured immediately after sample collection.

(2) The sample pH did not meet the preservation guidelines. Therefore the pH was adjusted upon receipt.

(3) Reference Standard Methods 17th edition for the distillation method.

(4) The sample was analyzed out of the USEPA holding time.

(5) The sample was received in the laboratory out of the USEPA holding time.

(6) The shipping cooler temperature exceeded 6°C upon receipt to Empirical Laboratories.

(7) Analysis was subcontracted

Appendix C

Photographs



Facing Southeast at Building 2403



Facing Northeast at Building 2403



Beginning Excavation at Building 2403



Beginning Excavation at Building 2403



Facing Northeast at Building 2403



Building Waste Soil Pile



Building Waste Soil Pile



Facing Southwest at Building 2403



Facing Northwest at Building 2403



Facing Northwest at Building 2403 Showing Full Excavation



3 foot Excavation Area Showing Burned Rubble and Debris



View Facing Northeast of Completed Excavation at Building 2403



View Facing Southeast of Completed Excavation at Building 2403



View Facing Southwest of Completed Excavation at Building 2403



View Facing Southeast of Confirmatory Sampling Grid at Building 2403



View Facing Northwest of Confirmatory Sampling Grid at Building 2403



View Facing East of 3 foot Excavation Area at Building 2403 Showing Safety Flagging



View Facing Southeast of Site Restoration
at Building 2403



View Facing Southwest of Site Restoration
at Building 2403

Appendix D

Waste Profile and Disposal Manifests

ONIS "TREY" GLENN, III
DIRECTOR



BOB RILEY
GOVERNOR

02/17/2009

MR JEFFREY ALBERT
SES LLC
1006 FLOYD CULLER CT
OAK RIDGE TN 37830

RE: Waste Certification
175 Cubic Yards Soil Only

Dear MR ALBERT:

The Alabama Department of Environmental Management has reviewed your waste certification received on 02/05/2009 has assigned a Certification Number for this waste as shown below.

Waste Profile # 090084	Former AL Army Ammunition Plant
Certification #SW-022811-0020	Hwy 235
Expiration Date of Certification: 02/28/2011	Childersburg AL 35044

In your certification you requested one or more landfills be approved to receive your waste. Based on our review of the waste and the landfills requested, the waste is approved for disposal in the following landfills:

Veolia Star Ridge Landfill	58-05
Three Corners Regional Landfill	10-02

You should provide this approval letter to the landfill to be used and contact the landfill to determine any special handling requirements for this waste prior to delivery to the landfill. According to ADEM regulations, the landfill may not receive this waste unless it has received a waste certification approval.

If this waste will be generated on a routine basis (not a one-time occurrence), another written certification of this waste should be submitted to ADEM prior to expiration of the certification number. Each recertification submitted should include a completed Solid Waste Profile Sheet, any supporting documentation, and the appropriate fee. This approval letter does not exempt Former AL Army Ammunition Plant from complying with applicable requirements of the ADEM Hazardous Waste Program regulations.

If you submitted the certification via facsimile, hard copies of all documents should be forwarded to ADEM as soon as possible.

If you have any questions concerning this approval or the approval process, please contact Ms Lynn T. Roper at 334-271-7728.

Sincerely,

A handwritten signature in dark ink, appearing to read "JL Bryant", is written over the typed name.

James L. Bryant, PE
Chief, Environmental Services Branch

JLB/gs

Birmingham Branch

Decatur Branch

Mobile Branch

Mobile - Coastal

Generator's Nonhazardous Waste Profile Sheet



Requested Disposal Facility Three Corners Regional Landfill Profile Number 102307AL

☐ Renewal for Profile Number _____ Waste Approval Expiration Date _____

A. Waste Generator Facility Information (must reflect location of waste generation/origin)

1. Generator Name: FORMER ALABAMA ARMY AMMUNITION PLANT
 2. Site Address: COOSA PINES DR 7. Email Address: ERNEST.R.MCCOLLUM@USACE.ARMY.MIL
 3. City/ZIP: CHILDESBURG 8. Phone: (251) 690-3113 9. FAX: _____
 4. State: AL 10. NAICS Code: _____
 5. County: TALLEDEGA 11. Generator USEPA ID #: AL6210020008
 6. Contact Name/Title: W91278-08-D-0031 12. State ID# (if applicable): _____

B. Customer Information ☐ same as above

P. O. Number: _____

1. Customer Name: SES LLC 6. Phone: (865) 481-7837 FAX: (865) 481-0290
 2. Billing Address: 1006 FLOYD CULLER CT 7. Transporter Name: EXT 272
 3. City, State and ZIP: OAK RIDGE, TN 37830 8. Transporter ID # (if appl.): _____
 4. Contact Name: JEFF CARTER 9. Transporter Address: _____
 5. Contact Email: jcarter@SPECPROENV.COM 10. City, State and ZIP: _____

C. Waste Stream Information

1. DESCRIPTION

a. Common Waste Name: SOIL WITH LOW LEVEL PAH
 State Waste Code(s): _____

b. Describe Process Generating Waste or Source of Contamination:

EXCAVATING SOIL WITH TRACKED EXCAVATOR.

c. Typical Color(s): DARK RED BROWN

d. Strong Odor? ☐ Yes ☒ No Describe: _____

e. Physical State at 70°F: ☒ Solid ☐ Liquid ☐ Powder ☐ Semi-Solid or Sludge ☐ Other: _____

f. Layers? ☒ Single layer ☐ Multi-layer ☐ NA

g. Water Reactive? ☐ Yes ☒ No If Yes, Describe: _____

h. Free Liquid Range (%): _____ to _____ ☒ NA(solid)

i. pH Range: ☐ ≤2 ☐ 2.1-12.4 ☐ ≥12.5 ☒ NA(solid) ☐ Actual: _____

j. Liquid Flash Point: ☐ < 140°F ☐ ≥ 140°F ☒ NA(solid) ☐ Actual: _____

k. Flammable Solid: ☐ Yes ☒ No

l. Physical Constituents: List all constituents of waste stream - (e.g. Soil 0-80%, Wood 0-20%): ☐ (See Attached)

Constituents (Total Composition Must be > 100%)	Lower Range	Unit of Measure	Upper Range	Unit of Measure
1. <u>SOIL</u>	<u>0</u>		<u>100%</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				

2. ESTIMATED QUANTITY OF WASTE AND SHIPPING INFORMATION

a. ☒ One Time Event ☐ Base ☐ Repeat Event

b. Estimated Annual Quantity: 210 ☒ Tons ☐ Cubic Yards ☐ Drums ☐ Gallons ☐ Other (specify): _____

c. Shipping Frequency: 15 TRUCK LOADS Units per ☐ Month ☐ Quarter ☐ Year ☒ One Time ☐ Other

d. Is this a U.S. Department of Transportation (USDOT) Hazardous Material? (If yes, answer e.) ☐ Yes ☒ No

e. USDOT Shipping Description (if applicable): _____

3. SAFETY REQUIREMENTS (Handling, PPE, etc.): NONE



Generator's Nonhazardous Waste Profile Sheet

102307AL

D. Regulatory Status (Please check appropriate responses)

1. Is this a USEPA (40 CFR Part 261)/State hazardous waste? If yes, contact your sales representative. ☐ Yes ☒ No
2. Is this waste included in one or more of categories below (Check all that apply)? If yes, attach supporting documentation. ☐ Yes ☒ No
 - ☐ Delisted Hazardous Waste ☐ Excluded Wastes Under 40 CFR 261.4
 - ☐ Treated Hazardous Waste Debris ☐ Treated Characteristic Hazardous Waste
3. Is the waste from a Federal (40 CFR 300, Appendix B) or state mandated clean-up? If yes, see instructions. ☒ Yes ☐ No
4. Does the waste represented by this waste profile sheet contain radioactive material? ☐ Yes ☒ No
 - a. If yes, is disposal regulated by the Nuclear Regulatory Commission? ☐ Yes ☐ No
 - b. If yes, is disposal regulated by a State Agency for radioactive waste/NORM? ☐ Yes ☐ No
5. Does the waste represented by this waste profile sheet contain concentrations of regulated Polychlorinated Biphenyls (PCBs)? ☐ Yes ☒ No
 - a. If yes, is disposal regulated under TSCA? ☐ Yes ☐ No
6. Does the waste contain untreated, regulated, medical or infectious waste? ☐ Yes ☒ No
7. Does the waste contain asbestos? ☐ Yes ☒ No If Yes, ☐ Friable ☐ Non Friable
8. Is this profile for remediation waste from a facility that is a major source of Hazardous Air Pollutants (Site Remediation NESHAP, 40 CFR 63 subpart GGGGG)? ☐ Yes ☒ No
If yes, does the waste contain <500 ppmw VOHAPs at the point of determination? ☐ Yes ☐ No

E. Generator Certification (Please read and certify by signature below)

By signing this Generator's Waste Profile Sheet, I hereby certify that all:

1. Information submitted in this profile and all attached documents contain true and accurate descriptions of the waste material;
2. Relevant information within the possession of the Generator regarding known or suspected hazards pertaining to this waste has been disclosed to WM/the Contractor;
3. Analytical data attached pertaining to the profiled waste was derived from testing a representative sample in accordance with 40 CFR 261.20(c) or equivalent rules; and
4. Changes that occur in the character of the waste (i.e. changes in the process or new analytical) will be identified by the Generator and disclosed to WM (and the Contractor if applicable) prior to providing the waste to WM (and the Contractor if applicable).
5. Check all that apply:

- ☒ Attached analytical pertains to the waste. Identify laboratory & sample ID #'s and parameters tested:

SAMPLE # AL 2403-SS-01

Pages: 6

- ☐ Only the analyses identified on the attachment pertain to the waste (identify by laboratory & sample ID #'s and parameters tested).

Attachment #:

- ☐ Additional information necessary to characterize the profiled waste has been attached (other than analytical).

Indicate the number of attached pages:

- ☐ I am an agent signing on behalf of the Generator, and the delegation of authority to me from the Generator for this signature is available upon request.

- ☒ By Generator process knowledge, the following waste is not a listed waste and is below all TCLP regulatory limits.

Certification Signature: Ernest R. McCollum

Title: Geologist

Company Name: U.S. Army C of E, Mobile Dist

Name (Print): Ernest R. McCollum

Date: 23 Feb 2009

FOR WM USE ONLY

Management Method: ☐ Landfill ☐ Bioremediation

Approval Decision: ☐ Approved ☐ Not Approved

☐ Non-hazardous solidification ☐ Other:

Waste Approval Expiration Date:

Management Facility Precautions, Special Handling Procedures or Limitation

on approval:

☐ Shall not contain free liquid

☐ Shipment must be scheduled into disposal facility

☐ Approval Number must accompany each shipment

☐ Waste Manifest must accompany load

WM Authorization Name / Title:

Date:

State Authorization (if Required):

Date:

Client Empirical Laboratories, LLC (4017)
227 French Landing Drive
Nashville, TN 37228
Attn Marcia McGinnity

Work Order: NSA0582
Project Name: AL site
Project Number: 0901054 / Alabama TCLP
Received: 01/12/09 13.43

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NSA0582-01 (AL2403-SS-01 - Soil) Sampled: 01/08/09 14:30									
General Chemistry Parameters									
Oil & Grease (non-polar)	67.9	NI	mg/kg	42.7	48.5	1	01/19/09 09 02	SW846 9071B	9011870

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.V01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 0105401T

Level: (low/med) LOW Date Sampled: 01/08/09 14:30

% Moisture: not dec. Date Analyzed: 01/14/09 08:56

GC Column: RTX-VRX ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
71-43-2-----	Benzene	0.010	0.50	<0.010	U
78-93-3-----	2-Butanone	0.10	200	<0.10	U
56-23-5-----	Carbon tetrachloride	0.010	0.50	<0.010	U
108-90-7-----	Chlorobenzene	0.010	100	0.0043	J
67-66-3-----	Chloroform	0.010	6.0	<0.010	U
106-46-7-----	1,4-Dichlorobenzene	0.010	7.5	<0.010	U
107-06-2-----	1,2-Dichloroethane	0.010	0.50	<0.010	U
75-35-4-----	1,1-Dichloroethene	0.010	0.70	<0.010	U
127-18-4-----	Tetrachloroethene	0.010	0.70	<0.010	U
79-01-6-----	Trichloroethene	0.010	0.50	<0.010	U
75-01-4-----	Vinyl chloride	0.020	0.20	<0.020	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: SES.B01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 0105401T

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 01/08/09 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 01/14/09

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 01/16/09 15:47

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
121-14-2-----	2,4-Dinitrotoluene	0.050	0.13	<0.050	U
118-74-1-----	Hexachlorobenzene	0.050	0.13	<0.050	U
87-68-3-----	Hexachlorobutadiene	0.050	0.50	<0.050	U
67-72-1-----	Hexachloroethane	0.050	3.0	<0.050	U
108-39-4-----	3-Methylphenol	0.050	200	<0.050	U
106-44-5-----	4-Methylphenol	0.050	200	<0.050	U
95-48-7-----	2-Methylphenol	0.050	200	<0.050	U
98-95-3-----	Nitrobenzene	0.050	2.0	<0.050	U
87-86-5-----	Pentachlorophenol	0.20	100	<0.20	U
110-86-1-----	Pyridine	0.20	5.0	<0.20	U
95-95-4-----	2,4,5-Trichlorophenol	0.050	400	<0.050	U
88-06-2-----	2,4,6-Trichlorophenol	0.050	2.0	<0.050	U

FORM 1
PESTA ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: Case No.: SAS No.: NA SDG No.: SES.P01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 014F1401

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 01/08/09 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 01/14/09

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 01/26/09 18:11

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP Regulatory Limit	CONC	Q
57-74-9-----	Chlordane	0.00050	0.030	<0.00050	U
72-20-8-----	Endrin	0.00010	0.020	<0.00010	U
58-89-9-----	Gamma-BHC	0.00010	0.40	<0.00010	U
76-44-8-----	Heptachlor	0.00010	0.0080	<0.00010	U
1024-57-3-----	Heptachlor Epoxide	0.00010	0.0080	<0.00010	U
72-43-5-----	Methoxychlor	0.00010	10	<0.00010	U
8001-35-2-----	Toxaphene	0.010	0.50	<0.010	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AL2403-SS-01

Lab Name: EMPIRICAL LABS Contract: SES

Lab Code: Case No.: SAS No.: NA SDG No.: SES.H01054

Matrix: (soil/water) TCLP Lab Sample ID: 0901054-01

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 010F0301

% Moisture: _____ decanted: (Y/N) _____ Date Sampled: 01/08/09 14:30

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted: 01/14/09

Concentrated Extract Volume: 10.0 (mL) Date Analyzed: 01/15/09 16:23

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L

CAS NO.	COMPOUND	EQL	TCLP	CONC	Q
			Regulatory Limit		
94-75-7-----2,4-D		0.0050	10	<0.0050	U
93-72-1-----2,4,5-TP (Silvex)		0.00050	1.0	<0.00050	U



Empirical Laboratories

CLIENT: SES, Inc.

DATE RECEIVED: 01/09/09

DATE REPORTED: 01/30/09

EMPIRICAL LABORATORIES SAMPLE NUMBER						0901054-01
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE						AL2403-SS-01 01/08/2009 14:30
ANALYTES	REGULATORY LIMITS	MDL	REPORTING LIMITS	USEPA METHOD	UNITS	CONC
Arsenic-TCLP	5.0	0.030	0.10	1311/6010B	mg/L	<0.030
Barium-TCLP	100	0.050	2.0	1311/6010B	mg/L	0.388 B
Cadmium-TCLP	1.0	0.010	0.050	1311/6010B	mg/L	<0.010
Chromium-TCLP	5.0	0.020	0.10	1311/6010B	mg/L	<0.020
Lead-TCLP	5.0	0.015	0.030	1311/6010B	mg/L	<0.015
Mercury-TCLP	0.20	0.00080	0.0020	1311/7470A	mg/L	<0.00080
Selenium-TCLP	1.0	0.030	0.050	1311/6010B	mg/L	<0.030
Silver-TCLP	5.0	0.010	0.10	1311/6010B	mg/L	<0.010
Initial pH - TCLP	NA	NA	NA	1311	Units	7.4
Final pH - TCLP	NA	NA	NA	1311	Units	4.9
Cyanide	250	0.12	0.25	9012A	mg/kg (as Rec'd)	0.17 B
Ignitability	<140	NA	NA	1010	°F	>158
pH- Laboratory (1)	<2/>12.5	NA	NA	9045B	Units	7.3 @ 25°C
Reactive Sulfide	500	19	57	Chap.7.3.4.2	mg/kg (as Rec'd)	<19

See attached page for definitions of terms and qualifiers.

EMPIRICAL LABORATORIES

D. Rick Davis
Vice President



Case

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS MANIFEST		Generator's US EPA ID No.		Manifest Document No.		2. Page 1 of 1		
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PINES DRIVE CHILDERSBURG AL 35044				A. Manifest Number WMNA 10935553				
4. Generator's Phone 865 481-7837				B. State Generator's ID				
5. Transporter 1 Company Name HILLTOP				6. US EPA ID Number 1111111111				
7. Transporter 2 Company Name				8. US EPA ID Number				
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 8 PIEDMONT AL 35272				10. US EPA ID Number				
11. Description of Waste Materials SOIL WITH LOW LEVEL PAH CONTAMINATION				12. Containers No. Type		13. Total Quantity	14. Unit Wt/Vol	15. Misc. Comments
a. WM Profile # 102307AL								
b. WM Profile #								
c. WM Profile #								
d. WM Profile #								
J. Additional Descriptions for Materials Listed Above Landfill _____ Solidification _____ Bio Remediation _____				K. Disposal Location Cell _____ Level _____ Grid _____				
15. Special Handling Instructions and Additional Information Purchase Order # _____ EMERGENCY CONTACT: _____								
16. GENERATOR'S CERTIFICATION: I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations. Printed/Typed Name _____ Signature _____ On behalf of _____ Month _____ Day _____ Year _____ for USACE								
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____								
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____								
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.								
20. Facility Owner or Operator Certification of receipt of non-hazardous materials covered by this manifest. Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____								



NON-HAZARDOUS MANIFEST

CWM

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PINES DRIVE CHILDERSBURG AL 35044		A. Manifest Number WMNA 10935554		
4. Generator's Phone 805 481-7837		B. State Generator's ID		
5. Transporter 1 Company Name MASSCO HAULING	6. US EPA ID Number	C. State Transporter's ID		
7. Transporter 2 Company Name MASSCO	8. US EPA ID Number	D. Transporter's Phone		
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 PIEDMONT AL 36272		E. State Transporter's ID		
		F. Transporter's Phone		
		G. State Facility's ID		
		H. Facility's Phone 253 447-1801		
11. Description of Waste Materials		12. Containers	13. Total Quantity	14. Unit
a. SOIL WITH LOW LEVEL PAH CONTAMINATION		No. Type		WT/Vol.
WM Profile # 102307AL				
b. WM Profile #				
c. WM Profile #				
d. WM Profile #				
J. Additional Descriptions for Materials Listed Above		K. Disposal Location		
Landfill _____ Solidification _____		Cell _____ Level _____		
Bio Remediation _____		Grid _____		
15. Special Handling Instructions and Additional Information				
Purchase Order # _____ EMERGENCY CONTACT: _____				
16. GENERATOR'S CERTIFICATION: I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.				
Printed/Typed Name MASSCO		Signature On Behalf of For MSACE		Month Day Year 6/5/99
17. Transporter 1 Acknowledgement of Receipt of Materials				
Printed/Typed Name James Hillis		Signature James Hillis		Month Day Year 6/13/99
18. Transporter 2 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature		Month Day Year
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.				
Printed/Typed Name James Hillis		Signature James Hillis		Month Day Year 6/5/99



NON-HAZARDOUS MANIFEST

CWM

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No P16F112F000008 0001	Manifest Document No.	2. Page 1 of 1	
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PINES DRIVE CHILDERSBURG AL 35044		A. Manifest Number WMNA 10935555			
4. Generator's Phone 865 481-7237		B. State Generator's ID			
5. Transporter 1 Company Name MAYSE, PAULINE C. 1117		C. State Transporter's ID			
6. US EPA ID Number		D. Transporter's Phone			
7. Transporter 2 Company Name		E. State Transporter's ID			
8. US EPA ID Number		F. Transporter's Phone			
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 8 PIEDMONT AL 36272		G. State Facility's ID			
10. US EPA ID Number		H. Facility's Phone 256 447-1881			
11. Description of Waste Materials		12. Containers No. Type	13. Total Quantity	14. Unit Wt./Vol.	I. Misc. Comments
a. SOIL WITH LOW/LEVEL PAH CONTAMINATION WM Profile # 102307AL					17.1.7.10.15
b. WM Profile #					17.1.7.10.15
c. WM Profile #					
d. WM Profile #					
J. Additional Descriptions for Materials Listed Above Landfill _____ Solidification _____ Bio Remediation _____		K. Disposal Location Cell _____ Level _____ Grid _____			
15. Special Handling Instructions and Additional Information Purchase Order # _____ EMERGENCY CONTACT: _____					
16. GENERATOR'S CERTIFICATION: I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations. Printed/Typed Name: M.C. LEE Signature: M.C. LEE Month Day Year: 05 15 01					
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name: M.C. LEE Signature: M.C. LEE Month Day Year: 05 15 01				
	18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name: M.C. LEE Signature: M.C. LEE Month Day Year: 05 15 01				
	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
CITY	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest. Printed/Typed Name: M.C. LEE Signature: M.C. LEE Month Day Year: 05 15 01				



NON-HAZARDOUS MANIFEST

CWMH

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No. AL1211PTE100101	Manifest Document No. BT 161	2. Page 1 of 1	
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PINES DRIVE CHILDERSBURG AL 35044			A. Manifest Number WMNA 13335556		
4. Generator's Phone 865 481-7837			B. State Generator's ID		
5. Transporter 1 Company Name MOSSEY HAZARDOUS CO			C. State Transporter's ID		
6. US EPA ID Number			D. Transporter's Phone		
7. Transporter 2 Company Name			E. State Transporter's ID		
8. US EPA ID Number			F. Transporter's Phone		
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 PIEDMONT AL 36277			G. State Facility's ID		
10. US EPA ID Number			H. Facility's Phone 256 447-1881		
11. Description of Waste Materials		12. Containers No. Type	13. Total Quantity	14. Unit Wt./Vol.	I. Misc. Comments
a. SOIL WITH LOW LEVEL PAH CONTAMINATION					
WM Profile # 102307AL					
b.					
WM Profile #					
c.					
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Landfill _____ Solidification _____ Bio Remediation _____			K. Disposal Location Cell _____ Level _____ Grid _____		
15. Special Handling Instructions and Additional Information Purchase Order # _____ EMERGENCY CONTACT: _____					
16. GENERATOR'S CERTIFICATION: I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.					
Printed/Typed Name C. R. H. C. L. H. A. I.		Signature "On behalf of" C. R. H. C. L. H. A. I.		Month Day Year 10/30/97	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name T. R. H. C. L. H. A. I.		Signature T. R. H. C. L. H. A. I.		Month Day Year 10/30/97	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed/Typed Name T. R. H. C. L. H. A. I.		Signature T. R. H. C. L. H. A. I.		Month Day Year 10/30/97	



NON-HAZARDOUS MANIFEST

CWM

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 3
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PINES DRIVE CHILDERSBURG AL 35044		A. Manifest Number WMNA 10935557		
4. Generator's Phone 665 481-7237		B. State Generator's ID		
5. Transporter 1 Company Name MUSSEY HAULING CO	6. US EPA ID Number	C. State Transporter's ID		
7. Transporter 2 Company Name	8. US EPA ID Number	D. Transporter's Phone		
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 PEDMONT AL 36272		E. State Transporter's ID		
10. US EPA ID Number		F. Transporter's Phone		
11. Description of Waste Materials SOIL WITH LOW LEVEL PAH CONTAMINATION		G. State Facility's ID		
12. Containers		H. Facility's Phone 256 447-1881		
		No	Type	13. Total Quantity
a. WM Profile # 102307AL				14. Unit WL/Vol
b. WM Profile #				I. Misc. Comments
c. WM Profile #				
d. WM Profile #				
J. Additional Descriptions for Materials Listed Above		K. Disposal Location		
Landfill _____ Solidification _____		Cell _____ Level _____		
Bio Remediation _____		Grid _____		
15. Special Handling Instructions and Additional Information				
Purchase Order # _____ EMERGENCY CONTACT: _____				
16. GENERATOR'S CERTIFICATION I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.				
Printed/Typed Name CHRISTY M. COLLINS		Signature "On behalf of" CHRISTY M. COLLINS		Month Day Year 03 25 09
17. Transporter 1 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature		Month Day Year
18. Transporter 2 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature		Month Day Year
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.				
Printed/Typed Name JOHN R. HARRIS		Signature JOHN R. HARRIS		Month Day Year 03 25 09



NON-HAZARDOUS MANIFEST

CWM

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No. AL16P110021000001 10041		Manifest Document No.		2. Page 1 of 1	
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PINES DRIVE CHILDERSBURG AL 35044				A. Manifest Number WMNA 13935558			
4. Generator's Phone 865 481-7637				B. State Generator's ID			
5. Transporter 1 Company Name MASSEY HAULING CO				6. US EPA ID Number		C. State Transporter's ID	
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone	
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 PIEDMONT AL 35272				10. US EPA ID Number		E. State Transporter's ID	
						F. Transporter's Phone	
						G. State Facility's ID	
						H. Facility's Phone 256 447-1881	
11. Description of Waste Materials				12. Containers		13. Total Quantity	
				No. Type		14. Unit Wt./Vol.	
a. SOIL WITH LOW LEVEL PAH CONTAMINATION						I. Misc. Comments	
WM Profile # 102307AL							
b. WM Profile #							
c. WM Profile #							
d. WM Profile #							
J. Additional Descriptions for Materials Listed Above				K. Disposal Location			
Landfill _____ Solidification _____				Cell _____ Level _____			
Bio Remediation _____				Grid _____			
15. Special Handling Instructions and Additional Information							
Purchase Order # _____ EMERGENCY CONTACT: _____							
16. GENERATOR'S CERTIFICATION: I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.							
Printed/Typed Name Paul McCollum				Signature "On behalf of" <i>[Signature]</i>		Month Day Year 05/03/04	
17. Transporter 1 Acknowledgement of Receipt of Materials							
Printed/Typed Name Bill H				Signature <i>[Signature]</i>		Month Day Year 05/03/04	
18. Transporter 2 Acknowledgement of Receipt of Materials							
Printed/Typed Name				Signature		Month Day Year	
19. Certificate of Final Treatment/Disposal							
I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.							
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.							
Printed/Typed Name Bill H				Signature <i>[Signature]</i>		Month Day Year 05/03/04	



NON-HAZARDOUS MANIFEST

CWM

Please print or type (Form designed for use on site (12-pitch) typewriter.)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PINES DRIVE CHILDERSBURG AL 36044		A. Manifest Number WMNA 10935559		
4. Generator's Phone 255 481-7837		B. State Generator's ID		
5. Transporter 1 Company Name MASSEY HAILING CO		6. US EPA ID Number		C. State Transporter's ID
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 8 PIEDMONT AL 36272		10. US EPA ID Number		E. State Transporter's ID
				F. Transporter's Phone
				G. State Facility's ID
				H. Facility's Phone 256 447-1831
11. Description of Waste Materials		12. Containers	13. Total Quantity	14. Unit Wt./Vol.
a. SOIL WITH LOW LEVEL PAH CONTAMINATION		No. Type		
WM Profile # 102307AL				
b. WM Profile #				
c. WM Profile #				
d. WM Profile #				
J. Additional Descriptions for Materials Listed Above		K. Disposal Location		
Landfill _____ Solidification _____		Cell _____ Level _____		
Bio Remediation _____		Grid _____		
15. Special Handling Instructions and Additional Information				
Purchase Order # _____ EMERGENCY CONTACT _____				
16. GENERATOR'S CERTIFICATION: I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.				
Printed/Typed Name GENIE RICE		Signature "On behalf of" for USACE		Month Day Year 10/23/99
17. Transporter 1 Acknowledgement of Receipt of Materials				
Printed/Typed Name T. H. H. H. MH-11		Signature T. H. H. H. MH-11		Month Day Year 10/23/99
18. Transporter 2 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature		Month Day Year
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.				
Printed/Typed Name T. H. H. H. MH-11		Signature T. H. H. H. MH-11		Month Day Year 10/23/99



NON-HAZARDOUS MANIFEST

CWM

see print or type (Form designed for use on site (12 spots) by generator)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No. AL 16241106121010181		Manifest Document No. 0061		2. Page 1 of 1	
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COOSA PRESS DRIVE CHILDERSBURG AL 36004						A. Manifest Number WMNA 10935560	
4. Generator's Phone 866 481-7837						B. State Generator's ID	
5. Transporter 1 Company Name MASSEY HAULING CO				E. US EPA ID Number		C. State Transporter's ID	
7. Transporter 2 Company Name M#9				A. US EPA ID Number		D. Transporter's Phone	
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 8 PIEDMONT AL 36272				10. US EPA ID Number		G. State Facility's ID	
						H. Facility's Phone 256 447-1881	
11. Description of Waste Materials SOIL WITH LOW LEVEL PAH CONTAMINATION						12. Containers	
						No. Type	
WM Profile # 102307AL						Total Quantity 27.79 TONS	
WM Profile #						Unit Weight	
WM Profile #						Misc. Comments	
13. Additional Descriptions for Materials Listed Above Landfill _____ Solidification _____ Bio Remediation _____						K. Disposal Location Cell _____ Level _____ Gid _____	
15. Special Handling Instructions and Additional Information Purchase Order # _____ EMERGENCY CONTACT _____							
16. GENERATOR'S CERTIFICATION I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations. Printed/Typed Name: ERNEST MC COLLEUM Signature: <i>[Signature]</i> Month Day Year: 10/3/03/04							
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name: ERNEST HILLIS M# 9 Signature: <i>[Signature]</i> Month Day Year: 10/3/03/04							
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name: _____ Signature: _____ Month Day Year: _____							
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.							
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest. Printed/Typed Name: THOMAS R. FIELDS Signature: <i>[Signature]</i> Month Day Year: 10/3/04							



NON-HAZARDOUS MANIFEST

Please print or type. (Form designed for use on 8 1/2" x 11" paper.)

CWM

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No. AL 62100B P 0108 DD 8		2. Page 1 of 1	
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT CROSS HOLE DRIVE CINDERBURG AL 36041				A. Manifest Number WMNA 10935561	
4. Generator's Phone 205 481-7837				B. State Generator's ID	
5. Transporter 1 Company Name MASSEY HAULING CO		8. US EPA ID Number		C. State Transporter's ID	
7. Transporter 2 Company Name MH-5		9. US EPA ID Number		D. Transporter's Phone	
6. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 PIEDMONT AL 36272		10. US EPA ID Number		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility's ID	
				H. Facility's Phone 256 447-1861	
11. Description of Waste/Materials SOIL WITH LOW LEVEL PAH CONTAMINATION				12. Containers No. 13. Total Quantity 26.90	14. Unit M/100
WM Profile # 102307AL				Misc. Comments	
WM Profile #					
WM Profile #					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Landfill Solidification Bio Remediation				K. Disposal Location Cell Level Grid	
15. Special Handling Instructions and Additional Information Purchase Order # EMERGENCY CONTACT					
16. GENERATOR'S CERTIFICATION I hereby certify that the above described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.					
Printed/Typed Name ERNEST M. COLLUM		Signature <i>[Signature]</i>		Month Day Year 03 03 09	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name * JAMES D. PETERS MH-5		Signature <i>[Signature]</i>		Month Day Year 03 03 09	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year	
19. Certificate of Final Treatment/Disposal I certify on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner/Operator Certification of receipt of non-hazardous materials covered by this manifest Printed/Typed Name THOMAS SHIELDS		Signature <i>[Signature]</i>		Month Day Year 03 03 09	



NON-HAZARDOUS MANIFEST

CWM

Use print or type. (Form designed for use on site (12-01-03) (Sprenter))

1. Generator's US EPA ID No.		Manifest Document No.		2. Page of 1	
ALCA 1062101081		0110			
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT 5200A FINE DRIVE CHILDERSBURG AL 38044				A. Manifest Number WMNA 10935562	
4. Generator's Phone 865 481-7837				B. State Generator's ID	
5. Transporter 1 Company Name MASSEY HAULING CO.		8. US EPA ID Number		C. State Transporter's ID	
Transporter 2 Company Name MH#8		9. US EPA ID Number		D. Transporter's Phone	
6. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 8 PIEDMONT AL 36272		10. US EPA ID Number		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility's ID	
				H. Facility's Phone 256 447-1881	
11. Description of Waste Materials					
SOIL WITH LOW LEVEL PAH CONTAMINATION					
WM Profile #		102207AL		29.15 TONS	
WM Profile #					
WM Profile #					
WM Profile #					
12. Containers				13. Qty	
No.				Type	
14. Additional Descriptions for Materials Listed Above				K. Disposal Location	
Landfill				Cell	
Solidification				Level	
Bio Remediation				Grid	
15. Special Handling Instructions and Additional Information					
Purchase Order					
EMERGENCY CONTACT					
16. GENERATOR'S CERTIFICATION					
I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.					
Printed/Typed Name		Signature		Month Day Year	
ERNEST MCCOLLUM		[Signature]		10/3/08	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
LUCY		[Signature]		10/14/08	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
19. Certificate of Final Treatment/Disposal					
I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed/Typed Name		Signature		Month Day Year	
JEROME K. SHIELDS		[Signature]		10/14/08	



NON-HAZARDOUS MANIFEST

CWM

(see print or type. Form designed for use on site (12-print) typewriter.)

NON-HAZARDOUS MANIFEST		Generator's US EPA ID No. AL 6215027010108		Manifest Document No. 10111	2. Page 1 of 1
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT 2005 COUNTY ROAD 6 PEDMONT AL 36772					A. Manifest Number WMNA 10935563
4. Generator's Phone 205 447-7837					B. State Generator's ID
5. Transporter 1 Company Name MASSEY HAULING CO					C. State Transporter's ID
6. Transporter 1 US EPA ID Number					D. Transporter's Phone
7. Transporter 2 Company Name					E. State Transporter's ID
8. Transporter 2 US EPA ID Number					F. Transporter's Phone
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 PEDMONT AL 36772					G. State Facility's ID
10. Facility's US EPA ID Number					H. Facility's Phone 205 447-1881
11. Description of Waste Materials					12. Containers
SOIL WITH LOW LEVEL PAH CONTAMINATION					No. Type
WM Profile # 102307AL					13. Total Containers
					14. Misc. Comments
15. Additional Descriptions for Materials Listed Above					K. Disposal Location
(Landfill) Solidification					Cell Level
Bio Remediation					Grid
16. Special Handling Instructions and Additional Information					
Purchase Order # _____ EMERGENCY CONTACT _____					
17. GENERATOR'S CERTIFICATION					
I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.					
Printed/Typed Name ERNEST MCCOLLUM					Signature <i>[Signature]</i>
					Month Day Year 03 10 09
18. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name T. Underwood MH-11					Signature <i>[Signature]</i>
					Month Day Year 03 05 09
19. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name					Signature
					Month Day Year
19. Certificate of Final Treatment/Disposal					
I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator Certification of receipt of non-hazardous materials covered by this manifest					
Printed/Typed Name THOMAS HEDDS					Signature <i>[Signature]</i>
					Month Day Year 03 05 09



NON-HAZARDOUS MANIFEST

CWM

Please print or type. (Form designed for use on letter (12 pitch) typewriter.)

NON-HAZARDOUS MANIFEST		Generator's US EPA ID No. AL 621084000181	Manifest Document No. 012	2. Page 1	
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT COCOA POLE DRIVE CHILDESBURG AL 36004				A. Manifest Number WMNA 10935564	
4. Generator's Phone 205 451-7637				B. State Operator's ID	
6. Transporter 1 Company Name MASSEY HAULING CO. MTH		US EPA ID Number		C. State Transporter's ID	
7. Transporter 2 Company Name		B. US EPA ID Number		D. Transporter's Phone	
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 FEDMONT AL 36772		10. US EPA ID Number		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility's ID	
				H. Facility's Phone 205 407-1881	
11. Description of Waste Materials SOIL WITH LOW LEVEL PAH CONTAMINATION		12. Containers No. Type	13. Total Quantity	14. Date Mo. Day Year	15. Misc. Comments
WM Profile # 102207AL			27.380 LB		
WM Profile #					
WM Profile #					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Landfill: Solidification: Bio Remediation:				K. Disposal Location Cell: Level: Env:	
15. Special Handling Instructions and Additional Information					
Purchase Order # EMERGENCY CONTACT					
16. GENERATOR'S CERTIFICATION I hereby certify that the above described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.					
Printed/Typed Name CROSBY - M. COLLINS		Signature <i>[Signature]</i>		Month Day Year 10 3 09	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name JAN CROSBY		Signature <i>[Signature]</i>		Month Day Year 03 10 09	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator Certification of receipt of non-hazardous materials covered by this manifest					
Printed/Typed Name JEFFREY K. STUBBS		Signature <i>[Signature]</i>		Month Day Year 03 10 09	



NON-HAZARDOUS MANIFEST

CWM

Please print or type. (Form designed for use on 12-pitch typewriter.)

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No. AL 6210020608		Manifest Document No. 013		2. Page of 1	
3. Generator's Name and Mailing Address FORMER ALABAMA ARMY AMMUNITION PLANT 6004 HESS DR CHILDEMBURG AL 36014				A. Manifest Number WMNA 10935565			
4. Generator's Phone 205 881-7837				B. State Generator's ID			
5. Transporter 1 Company Name MASSEY HAULING CO				C. State Transporter's ID			
6. Transporter 1 US EPA ID Number 1710				D. Transporter's Phone			
7. Transporter 2 Company Name				E. State Transporter's ID			
8. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 6 PEDDONT AL 36272				F. Facility's Phone 205 447-1861			
9. Description of Waste Materials				10. US EPA ID Number			
SOIL WITH LOW LEVEL PAH CONTAMINATION							
WM Profile # 102907AL				28.09.08			
WM Profile #							
WM Profile #							
WM Profile #							
J. Additional Descriptions for Materials Listed Above				K. Disposal Location			
Landfill Solidification				Cell Level			
Bio Remediation				Grid			
15. Special Handling Instructions and Additional Information							
Purchase Order # EMERGENCY CONTACT							
16. GENERATOR'S CERTIFICATION							
I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.							
Printed/Typed Name ERNEST MCCOLLUM				Signature (On behalf of) <i>Ernest McCollum</i>		Month Day Year 08 12 08	
17. Transporter 1 Acknowledgement of Receipt of Materials							
Printed/Typed Name Harvey L. Garner				Signature <i>Harvey L. Garner</i>		Month Day Year 03 03 09	
18. Transporter 2 Acknowledgement of Receipt of Materials							
Printed/Typed Name				Signature		Month Day Year	
19. Certificate of Final Treatment/Disposal							
I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.							
20. Facility Owner or Operator Certification of receipt of non-hazardous materials covered by this manifest							
Printed/Typed Name THOMAS SHIELDS				Signature <i>Thomas Shields</i>		Month Day Year 03 03 09	



NON-HAZARDOUS MANIFEST

Please print or type. (Form designed for use on white (12-lead) typewriter.)

CWM

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No. 116211042001081014		Manifest Document No. 014	2. Page 1 of 1
3. Generator's Name and Mailing Address FORNER ALABAMA ARMY AMMUNITION PLANT 1000 HILL DRIVE CHILDESSBURG AL 36014					A. Manifest Number WMNA 10935566
4. Generator's Phone 205 481-7837					B. State Generator's ID
5. Transporter 1 Company Name MASSEY HAULING CO					C. State Transporter's ID
6. Transporter 1 US EPA ID Number					D. Transporter's Phone
7. Transporter 2 Company Name					E. State Transporter's ID
8. Transporter 2 US EPA ID Number					F. Transporter's Phone
9. Designated Facility Name and Site Address THREE CORNERS REGIONAL LANDFILL 2205 COUNTY ROAD 8 PEDDIMENT AL 36772					G. State Facility's ID
10. Facility's Phone 205 447-1061					H. Facility's Phone
11. Description of Waste Materials SOIL WITH LOW LEVEL PAH CONTAMINATION		12. Containers No. Type	13. Total Weight Lbs. Kilos	14. Misc. Comments	
WM Profile # 102507AL					
WM Profile #					
WM Profile #					
WM Profile #					
Additional Descriptions for Materials Listed Above		15. Disposal Location			
Landfill Solidification		Cell Level			
Bio Remediation		Grid			
16. Special Handling Instructions and Additional Information					
Purchase Order # EMERGENCY CONTACT					
17. GENERATOR'S CERTIFICATION I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.					
Printed/Typed Name ERNEST MCCLAM		Signature <i>[Signature]</i>		Month Day Year 03 13 09	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature <i>[Signature]</i>		Month Day Year 03 13 09	
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature <i>[Signature]</i>		Month Day Year 03 13 09	
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator Certification of receipt of non-hazardous materials covered by this manifest		Signature <i>[Signature]</i>		Month Day Year 03 13 09	